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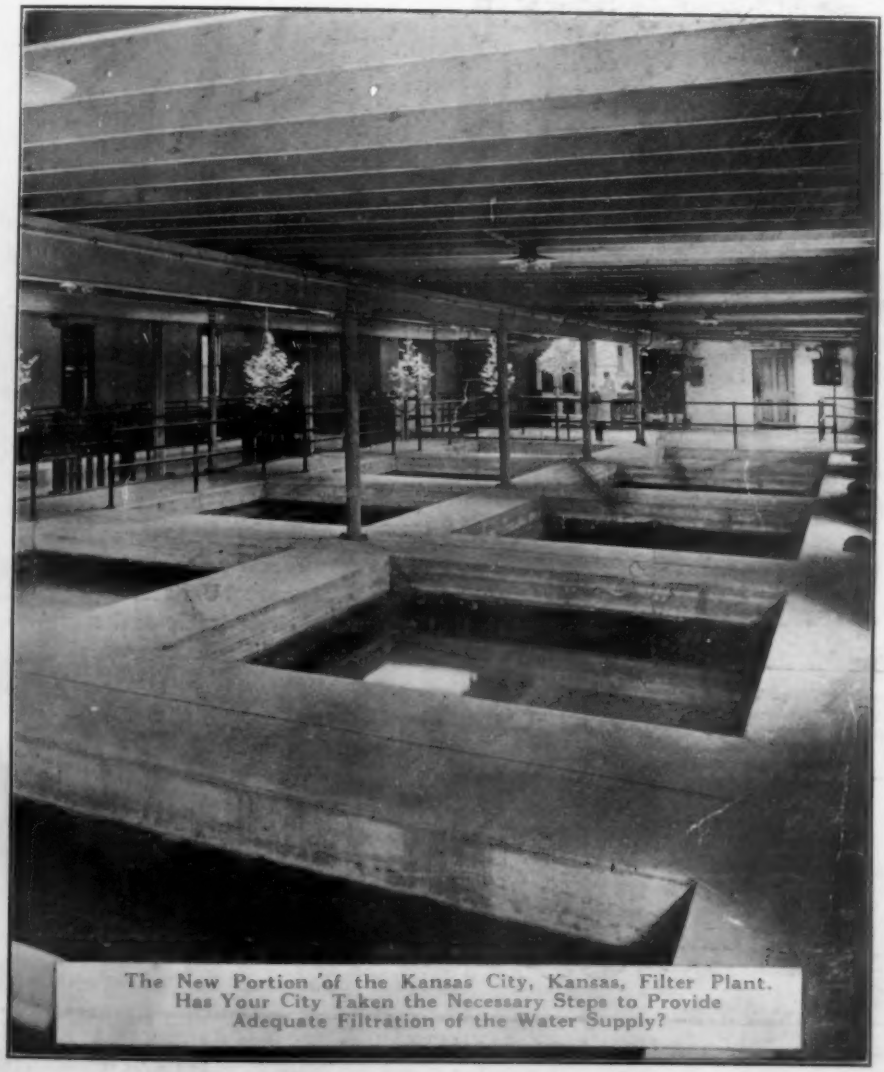

The New Portion of the Kansas City, Kansas, Filter Plant.
Has Your City Taken the Necessary Steps to Provide
Adequate Filtration of the Water Supply?

From an unretouched photo of the installation of G-E Novalux Fixtures in Cincinnati, Ohio.

When lighted, the artistic lines of the No. 9 Novalux Unit are clearly shown by the light passing through the glass top. The glazed inner surface throws additional light down on the street surfaces.

Streets Look Better In The Public Eye Under Novalux Lighting Fixtures

It is human nature to judge by appearances, and nothing helps create favorable judgment of a community like evidence of civic pride. It indicates the character of the inhabitants and guarantees the desirability of the community as a place in which to live.

One of the most obvious signs of civic pride is ornamental street lighting. Novalux Ornamental Units afford superior illumination that safeguards street traffic and meet the demand for artistic fixtures and lighting effects.

G-E Street Lighting Specialists are at the service of any community desiring expert knowledge on street lighting. Write our nearest office.

General Electric Company

General Office Schenectady, N.Y.

35-39

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The American City

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SEPTEMBER, 1919

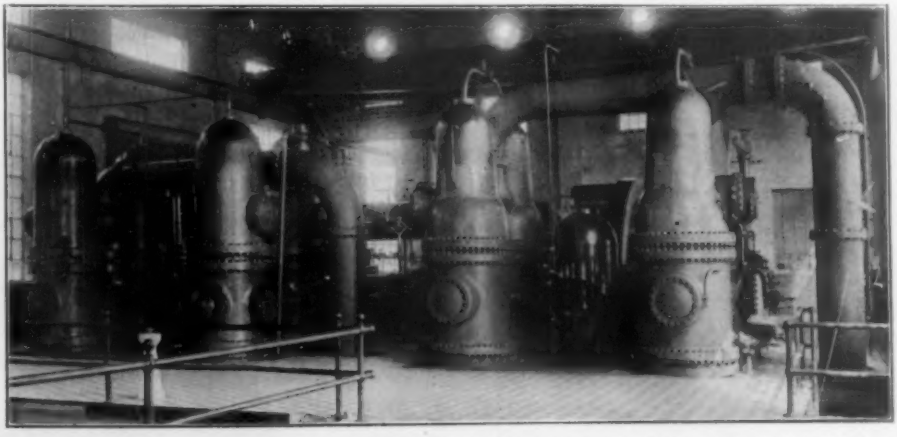
The Water-Works and Electric Plant of Kansas City, Kansas

Modern Equipment Properly Operated and Supervised Insures Economy

By H. C. Chapman
Water and Light Commissioner, Kansas City, Kansas

THE pumping and generating station of the Water-Works and Street Lighting Department of Kansas City, Kans., is located on forty acres of land at the northern limits of the city. By uniting these two closely related plants at one point and taking advantage of all the natural conditions favorable to economical operation, the city has been able to materially reduce the charges against the bonds which were issued for the construction of this plant.

The Missouri River is the source of the water-supply for the city, and also provides cooling water for the condensers of the light plant, thru an intake well of reinforced concrete and brick construction. This well is circular, with a foundation resting on bed rock about 30 feet below the normal stage of the river. It is divided into two independent units, each fitted with double sets of perforated screens for the removal of trash, leaves and other material which might prove injurious to the pumps. The valve arrangement at the intake well is such that either unit can be taken out of service for cleaning or repairs without disturbing



THE WATER END OF THE STEAM PUMPS OF THE KANSAS CITY, KANS., PUMPING STATION

PIPE GALLERY, WITH CONTROL TABLES AND FILTERS AT LEFT

the other. The intake well is connected with the low-service pumps located in the station, thru two independent 30-inch cast iron suction lines.

The Water Plant

The low-service pumping equipment consists of one 20-million-gallon, vertical, motor-driven Worthington centrifugal, one 15-million-gallon, horizontal, motor-driven DeLaval, and one 20-million-gallon, triple-expansion Holly pump. The low-service pumps are connected with the settling basins thru one 36-inch and one 30-inch cast iron discharge line with the valves arranged to permit passing any or all of the water thru the surface condensers of the light plant before it goes to the settling basin. The arrangement eliminates the necessity of having circulating pumps on the electric light plant generating unit.

The settling basins consist of three one-million-gallon units, one eight-million-gallon unit and one six-million-gallon unit. The one-million-gallon units are roughing basins, where the water is treated with alum and lime to remove the turbidity. After settling, the clarified water goes to the filter plant.

The filter plant consists of ten Jewell filters, each having a capacity of one-half million gallons daily, and nine new concrete filters, each having a capacity of one and one-quarter million gallons daily. The concrete filters are fitted with hydraulic controls for wash-water, drain and other valves. The filter effluent is collected in a concrete clear well of one million gallons' capacity, where it is sterilized with chlorine gas and whence it goes to the high-pressure pumps. The high-pressure pumping units consist of one 12½-million-gallon, cross-compound, condensing Snow pump, one 12½-million-gallon, cross-compound, condensing Allis-Chalmers pump, one 9-million and one 6-million duplex compound, direct-acting Worthington pump. The latter two pumps are maintained as reserve units only.

Water is delivered from the high-pressure end of the pumping station to the city thru one 30-inch and one 24-inch high-pressure main. At the southern limits of the city is located a 15-million-gallon storage basin at an elevation which will produce 125 pounds pressure at the pumping station. This storage reservoir floats on the distribution system in such a manner as to absorb all the excessive demands during the period of high uses, and is replenished at night during the period of lowest consumption. This feature eliminates all peaks at the pumping station and permits an economical continuous pumping rate thruout the 24 hours.

The distribution system consists of 152 miles of cast iron mains ranging from 4 to 30 inches in size, with a small quantity of 1¼-, 1½- and 2-inch mains located in the suburban districts. The average monthly consumption of water is 525,000,000 gallons, approximately 76 per cent of which is used for industrial purposes, chiefly for packing houses. The Water Department has at the present time 15,791 consumers, 7,700 of which are metered, the remainder being carried on a flat rate.

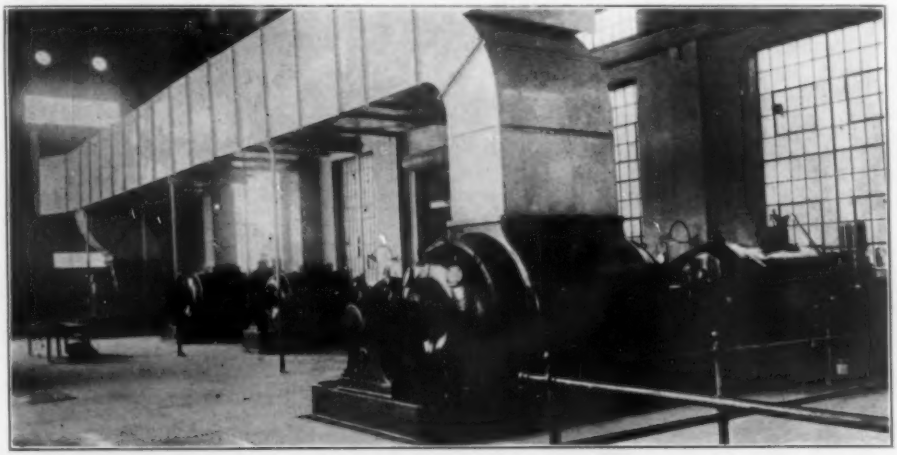
The Power Plant

Steam for both the water and light plants is generated at one boiler plant, consisting of two 500-horse-power Murray boilers,

two 500-horse-power Bonus Freeman boilers, one 300-horse-power Babcock & Wilcox boiler and five 300-horse-power Heine boilers, all of which are horizontal, water-tube boilers equipped with Jones underfeed stokers, and two 600-horse-power Stirling boilers equipped with Westinghouse underfeed stokers.

Coal for the power plant is handled from railroad cars by a conveyor to overhead bunkers with a locomotive crane and clamshell buckets, and ashes are discharged from the same conveyor into railroad cars. The average coal consumption is approximately 210 tons per day.

The boiler feed-water unit consists of one turbine-driven, two-stage centrifugal pump and two duplex direct-acting pumping sets.



GENERATORS AND AIR DUCT, KANSAS CITY, KANS., ELECTRIC LIGHT AND POWER STATION

The Electric Generating Station

The electric generating equipment consists of one 5,000-K. V. A., two 3,125-K. V. A. and one 1,000-K. V. A., 2,300-volt, 60-cycle, 3-phase Allis-Chalmers turbo generators operating at 3,600 revolutions per minute, and equipped with condensers.

The switchboard is of double-bus construction and has 22 panels. All switches are solenoid-operated. The feeder panels are fitted with overload relays, and each generator panel is fitted with reverse-current relaps and solenoid operated field switches. Adjoining the switchboard are six constant-current regulating transformers used for series street lighting.

Just south of the main engine room is located a transformer station, in which are housed three 200-ampere, 2,300-volt, induction, potential regulators on lighting feeders, and two banks of 2,300-volt, 6,600-13,200-volt transformers having a capacity of 5,400 K. V. A., and one bank of 2,300-6,600-volt transformers having a capacity of 2,250 K. V. A.

Domestic lighting and small-power service is distributed at 2,300 volts, and all large-power and sub-station service is distributed at 6,600 volts. The distribution system consists of two 250,000-C. M. power feeders, running to the industrial section in the southern part of the city, and three 2,300-volt regulated feeders covering the residential and business districts.

The street lighting service consists of about 100 arc lights, 315-400-candle-power, nitrogen-filled lamps, and 1,100 80-candle-power nitrogen lamps, all operated from constant-current transformers at the generating station and divided into six circuits. The ornamental lighting system consists of 360 five-light standards, the top light being an all-night light, and 45 one-light standards.

The average monthly output at the station switchboard is approximately 3,500,000 K. W. H. net. Approximately 60 per cent of this output is taken by large consumers.

Philadelphia's Epoch-Making Charter

Philadelphia's new charter is an epoch-making piece of legislation. The most important single reform is the creation of a small single-chambered council of 21 members, one for each 20,000 assessed voters, in place of the big cumbersome body of 146 men elected by "pocket boros." Each member of the new body will receive $5,000 per annum, and will serve for four years. The basis of the new charter was the Bullitt bill, under which Philadelphia has been governed for 32 years, and which concentrated great authority in the hands of the mayor. The new charter, while adhering to the theory of a responsible mayor, provides a system of checks and balances to overcome the abuses which developed under the Bullitt charter.

The essential features of the new charter are:

(1) The creation of a small council of 21 members, already mentioned.

(2) The grant of authority to the city to do its own street cleaning and repairing, to attend to the collection of ashes, waste, rubbish and garbage.

(3) The establishment of a business-like budget for city finances.

(4) The institution of civil service provisions, among them one making political activity and the payment of contributions by policemen and firemen a misdemeanor, punishable by fine and imprisonment.

The establishment of a central purchasing department, the office of city architect, a permanent city planning commission and the appointment instead of the election of the city solicitor are also features of the charter. The Bureau of Health is raised to the rank of a department, and the Bureaus of Charities, Correction, and Recreation are consolidated in a Department of Public Welfare.

The new instrument fails in that it does not eliminate partisan nomination and election. To offset this defect, the legislature adopted a group of reform bills dealing with election matters. Chief among these are an amended personal registration bill, an amended uniform primary act and an act to safeguard "the intention of the voter" in marking his ballot.

Persons unfamiliar with Philadelphia's political condition may fail to appreciate how thoroly the agents of the contractor's machine controlled the voting. Thru control of the legal machinery governing legislation and election, they have upon repeated occasions thwarted the public will. These new laws safeguard the ballot and are no less important than the charter itself in freeing Philadelphia from those political conditions which brought upon her the brand "Corrupt and Contented."

What Are Teachers Paid in Your City?

Teachers! Practically every state has become interested in better salaries for public school teachers. Twelve states and hundreds of local communities have transmuted that interest into actual increases. It is still legally possible, however, as the National Education Association points out, for a teacher to receive the disgraceful salary of $40 per month, and that for only six months—an annual salary of $240, or 66 cents a day. There is no class of workers in the railroad service, not even the section hands, that does not receive 107 per cent to 500 per cent of the average salary paid teachers. Hod carriers earn from one and one-half to twice as much as teachers, blacksmiths two and one-half, and bricklayers about three times as much. When one considers the years of preparation and constant study required of teachers, such comparisons are ludicrous. Never have our public schools had greater responsibilities than to-day. If we are to have teachers who measure up to this responsibility, they must be paid living salaries.—From *Leslie's Weekly*.

The Scope of the New Iowa State Housing Law

By Dr. Curtis W. Reese
State Commissioner of Housing

ONE of the first and most important functions of the state is the protection and promotion of the home. It is the duty of the state to see that the home is not driven to the hovel and the tenement; that greed and avarice are not allowed to rob the home of pure water, fresh air, and sunlight; and that nothing interferes with wholesome home conditions.

While the home is the matter of first importance, all the legitimate interests of the state are inter-related and inter-dependent. Hence, any movement to improve home conditions is in league with all other movements to advance any legitimate interest. Especially is this true with reference to building and allied industries and professions. Every sanitary and healthful home is an argument for home-building and home-owning.

Housing Laws Must Be Constructive

The leaders of the better housing movement are pledged to no "cut and dried" methods. They contemplate no radical and sudden economic revolution. The housing problem is not to be solved by "economic panacea." From the first this movement has aimed to be thoroly constructive.

Exposing bad housing conditions is worth while only when it results in a practical constructive program—one that stays out of the clouds and on the ground. Better housing, like other reforms, results only when common sense is duly respected.

Ideally, a state housing law should apply to every section of the state. Actually, only certain fundamentals can so apply—such as space, light, and ventilation. Certain other minimum requirements for the city cannot apply to smaller communities till they reach larger proportions. But by gradually growing in line with a few fundamentals, and later coming under the complete requirements of a state housing law, smaller communities may prevent the development of unwholesome conditions and so avoid curative remedies such as must now be applied to the larger communities. To cure is an expensive way; to prevent is a cheaper, better way.

Stricter requirements may apply to the undeveloped areas surrounding our cities, and to all new construction, than can be made to apply universally or to the built-up districts of the cities.

The new Iowa state housing law aims "to promote health, safety and welfare of the people by regulating the light and ventilation, sanitation, fire protection, maintenance, alteration and improvement of dwellings; to define the classes of dwellings affected by the act, to establish administrative requirements, and to establish remedies and fix penalties for the violation thereof."

Provisions of the Law

This act, known as the Housing Law of Iowa, Chapter 123, Acts of the 38th General Assembly, was approved March 31, 1919, and became effective on July 4, 1919. It is mandatory for every city of 15,000 or more population, and for every city as its population reaches 15,000. All cities and incorporated towns having a population less than 15,000 are empowered to adopt ordinances covering similar matters. Its enforcement is in the hands of the health officer or Board of Health of each city. The State Board of Health is authorized to examine into the enforcement in any city, to take steps necessary to secure enforcement, and to apply provisions of this act to mining camps. The housing law, two enabling acts, and a concurrent resolution providing for the printing of the law, were passed without a dissenting vote.

The law may be summarized as follows:

1. *General provisions.* These provisions determine the minimum population of communities to be affected by the law. The Iowa law at present is mandatory for all cities of 15,000 or more population and permissible for every organized town and city in the state. The state board of health may apply certain provisions of the law to mining camps thruout the state.

Also, under this head a "dwelling" is de-

fined as "any house or building or portion thereof which is occupied in whole or in part as the home, residence, or sleeping place of one or more human beings, either permanently or transiently." Dwellings are subdivided into (1) private dwellings, i. e., dwellings occupied by one family alone; (2) two-family dwellings, i. e., dwellings occupied by two families alone; (3) multiple dwellings, i. e., dwellings occupied other than as in (1) or (2).

Under this head we have many technical definitions which need not concern us in this brief outline.

2. *Dwellings hereafter erected.* Under this head are "the provisions which must be observed when a person proposes to build a new building or convert or alter to such purposes a building which is not a dwelling." Among the minimum requirements for a new dwelling are: that it shall not exceed in height 1½ times the width of the widest street on which it abuts when such street is measured from the building line to the opposite street line, or in any case not to exceed 100 feet (this does not apply to hotels); that each house shall have a yard; that every room shall have at least one window opening directly upon a street or public alley or other public space at least 16 feet in width, or upon a yard or court of certain dimensions and location; that the total window area of each room shall be at least one-eighth of the superficial floor area of each room; that all rooms shall have a certain minimum height and space (minimum height, eight feet three inches on first floor, seven feet six inches on second; minimum area 80 square feet, except kitchenettes, which may be 40 square feet); and that due provision is made for privacy, sanitation, ventilation, and fire protection.

3. *Alterations.* Under this head are the provisions which must be observed when a person proposes to alter an existing dwelling. These provisions do not allow a reconstructed building to offend against the standards set for new dwellings except in such details as are absolutely necessary. The chief advantage of this separate heading is that it enables one who wishes to alter a dwelling to find the requirements of the law without searching thru the entire law.

4. *Maintenance.* Under this head are provisions which the owner, and in certain cases the occupant, must observe with regard to the maintenance of a dwelling. The owner shall see that the water-closets, sinks, and the like are kept in good order; that the roof is kept so as not to leak; and that the building in general is kept in safe repair. In case of a private house, the occupant shall properly dispose of garbage, refuse, rubbish and other waste matter.

Overcrowding is not permitted. Certain animals shall not occupy a house with people, nor be kept on the same lot unless so permitted by the health officers.

Infected and uninhabitable houses are to be vacated.

5. *Improvements.* Under this head are the improvements required in the older buildings. Every old building affected by the act shall be made safe as regards fire escapes, ventilation, light, water, construction, etc. Social workers are familiar with the deplorable conditions in which many people live—old shacks, huts, dilapidated buildings, damp cellars, dark attics and the like. Such nuisances shall be abated.

6. *Requirements and remedies.* Before new dwellings are constructed or old dwellings converted or altered, specifications shall be submitted to the Health Officer and shall become a part of the public records. All such specifications must be properly examined, and, if found satisfactory, a permit issued before construction proceeds. Such permits are invalid after one year unless the work of construction has proceeded above the foundation walls. New dwellings shall not be occupied until the issuance of a certificate by the Health Officer that the requirements of the law have been met.

Persons guilty of a violation of this act shall be deemed guilty of a misdemeanor and dealt with accordingly. Tenants may be quickly evicted for violation of the provisions of the law.

The provisions of the law are to be enforced in each municipality by the Health Officer. The State Board of Health has general supervisory responsibility and power.

A brief summary such as this can touch only the high points. The underlying principle is that *no housing shall be permitted which impairs the health of the occupants or endangers the health of the community.* When any dwelling is dangerous to the health, safety and morals of its occupants, that dwelling is a menace to the health, safety and morals of the entire community. Hence, every unsanitary dwelling is a problem to be dealt with by the community and the state. The community and the state have tremendous responsibility and urgent duty in connection with the housing problem: they cannot shift the responsibility and they should not shun the duty.

The Social Loss Due to Bad Housing Is Even Greater Than the Present Increased Cost of Good Housing

The Effect of the War on Paving Operations in Baltimore

By George E. Finck
Assistant Engineer, Paving Commission, Baltimore, Md.

THE city of Baltimore was in the midst of its intensive paving program in 1917 when it was forced to practically abandon it. The paving done in 1918 consisted only of portions of contracts let in 1917, which for various reasons had not been completed during the same year. Baltimore's paving operations became nationally known for the very good work accomplished at a minimum expenditure. Every modern type, as well as all improved methods of paving, were in use at this time, and the city's specifications were considered a standard for many other cities to adopt or consult.

The money appropriated for the various departments of the municipal government is for the calendar year, namely, January 1 to December 31. As the armistice was signed in November, the city had time before the end of the year to consider the advisability of renewing paving operations during 1919.

It was known that everything, including paving, had advanced greatly in price, but the various departments doing the work decided to resume operations on a basis of pre-war prices. The increased percentage of the cost of paving was so problematic that it was almost impossible to estimate it in advance. The figures finally arrived at were lower than the bid prices, and the engineers still contend that prices remain too high.

Before advertising for bids, the specifications were carefully scanned to see if there was any possible manner of substituting materials so as to decrease cost without lowering the efficiency of the paving. Only two changes were made, and only one of these has been taken advantage of by the contractor. Air-cooled or especially prepared slag was admitted in place of broken stone or washed gravel for the concrete base. It must be free from chemical or other properties which will affect the setting qualities of the cement or the ultimate strength of the finished concrete, and must be of the same size specified for the broken stone. Strange to relate, there has not been a single contractor to take advantage of the use of crushed slag; this is attributed partly to the fact that crushed cobble is permissible for use in concrete; and as most of our streets have cobble in them before being repaved, it can be readily seen why crushed slag has not been used. The other change was the use of crushed cobblestone as the coarse aggregate of cement concrete paving. This was due to the high cost of broken stone and to inability to secure it in suitable condition. The contractors generally have taken advantage of this change, and the city believes that both contractor and city have benefited thereby.

The city had over $2,500,000 to spend on improved streets and alleys, and the first lot of contracts was sufficiently large to invite close bidding. The amount of money stated is for paving only and does not include that spent for water mains or sewer extensions in advance of improved paving. Practically all of the allotted money has been disposed of, either for completed work or for that under contract. The contracts vary in amounts from $5,000 to $150,000, giving the large or the small contractor every consideration to bid on such work as he was capable of handling. It can be readily seen that the contractor was given every opportunity to bid at a fair price, the city eliminating, with only few exceptions, all streets with railway tracks, so as to reduce the prices to a minimum.

Intense interest was displayed by both the contractors and city officials at the opening of the first bids in March, 1919. Since then we have let several contracts, but the prices have not varied except for a very small decrease since the first bids were received. This is attributed to the continued high rate of wage for unskilled labor, combined with the extremely low decrease in cost of materials. Cement, for instance, has slightly decreased in cost between the times of our first and second lettings of contracts,

but freight rates continue high. The increase in cost of vitrified and granite blocks over that of 1917 has not altered during the current year, while wood block has advanced greatly.

The table shown below, indicating average of accepted bid prices for 1916, 1917 and 1919, and the percentage increase in 1919 over 1917 by the Paving Commission of Baltimore, is quite an interesting study. The average prices include June bids, so that the table is up-to-date.

TABULATION OF ACCEPTED BID PRICES FOR 1916, 1917 AND 1919

Year	Sheet Asphalt Paving Per Sq. Yd. City Area: 1½" Wear Sur. 1½" Bin. Old Conc. Base	1½" Wear Sur. 1½" Bin. 5" Conc. Base	1½" Wear Sur. 1½" Bin. 6" Conc. Base	City or Rw.: 1½" Wear Sur. 1½" Bin. 6" Conc. Base	Binder Delivered	Vitrified B'ock Paving Per Sq. Yd. City Area: 3" Blk. Cem. Fil. Sand Cem. Bed 4" Conc. Base.	3½" Blk. Cem. Fil. Sand Cem. Bed 4" Conc. Base	Rw.: Cem. Fil. Sand Cem. Bed 4" Conc. Base	Cem. Fil. Sand Cem. Bed 5" Conc. Base	Cem. Fil. Sand Cem. Bed 6" Conc. Base	Cem. Fil. Sand Cem. Bed 6" Conc. Base	V. B. Gut. Per Sq. Yd. City Ar.: Cem. Fil. Sand Cem. Bed 5" Conc. Base	Cem. Fil. Sand Cem. Bed 6" Conc. Base	Granite B'ock Paving (New Blk.) Per Sq. Yd. City Ar.: Cem. Fil. Sand Cem. Bed 6" Conc. Base	Asp. Fil. Sand Cem. Bed 6" Conc. Base	Railway Area: Cem. Fil. Sand Cem. Bed 6" Conc. Base	Asp. Fil. Sand Cem. Bed 6" Conc. Base	Liners: Cem. Fil. Sand Cem. Bed 6" Conc. Base	Asp. Fil. Sand Cem. Bed 6" Conc. Base
1916	.90	1.33	1.42	1.49	6.41	2.16	1.98	2.14	2.08	2.18	2.23	2.09	2.15	3.22	3.15	3.26	3.39	3.88	3.96
1917	1.22	1.67	1.73	1.81	6.15	....	....	2.58	2.41	2.46	....	2.40	2.46	3.80	4.00	4.03	4.25	4.25	....
1919	1.77	2.80	2.87	3.07	7.78	....	....	....	3.75	3.89	....	3.68	3.93	....	....	....	....	....	....
% Increase 1917 to 1919	45	67	66	69	27				55	58		53	59						

Year	Gr. Blk. Paving (Red. Blk.) Per Sq. Yd. City Ar.: Cem. Fil. Sand Cem. Bed 6" Conc. Base	Asp. Fil. Sand Cem. Bed 6" Conc. Base	Railway Ar.: Cem. Fil. Sand Cem. Bed 6" Conc. Base	Asp. Fil. Sand Cem. Bed 6" Conc. Base	Liners: Cem. Fil. Sand Cem. Bed 6" Conc. Base	G.B.Pav. (Old Blk.) Per Sq. Yd. City Ar.: Asp. Fil. Sand Cem. Bed 5" Conc. Base	Cem. Fil. Sand Cem. Bed 5" Conc. Base	Durax Paving Per Sq. Yd. City Rw. Area: Cem. Fil. Sand Cem. Bed 6" Conc. Base	Cem. Fil. Sand Cem. Bed 6" Conc. Base	Asp. Fil. Sand Cem. Bed 6" Conc. Base	Wood Blk. Paving Per Sq. Yd. City Railway Ar.: Asp. Fil. Sand Cem. Bed 4" Conc. Base	Cem. Fil. Sand Cem. Bed 6" Conc. Base	Liners: Cem. Fil. Sand Cem. Bed 6" Conc. Base	Asp. Fil. Sand Cem. Bed 6" Conc. Base	Cem. Sq. Yd. City: Cem. Conc. Paving 6" Thick	Repaving Per Sq. Yd. City or Railway Ar.: Asp. Blk. Cem. Filler Sand Cem. Bed	Vit. Blk. Cem. Filler Sand Cem. Bed	Gr. Blk. Sand Filler Sand Bed	Wood Blk. Asp. Filler Sand Cem. Bed	Scoria Blk. Cem. Fil. Sand Cem. Bed	Cobble Sand Bed	Old Span or Vit. Blk. Headers Per Lin.Ft. Cy. or Rw. Ar.: Cem. Fil. Sand Cem. Bed 5" Conc. Base	Cem. Fil. Sand Cem. Bed 6" Conc. Base
1916	2.30	2.52	2.36	2.51	3.23	1.59	1.39	3.75	3.75	4.15	3.50	4.10	4.10	3.67	1.10	.53	.66	.56	.68	.70	.37	.12	.17
1917	2.77	2.97	2.93	3.15	3.50	2.70	2.39	....	....	....	3.80	....	3.90	....	1.38	.57	.64	.50	.90	.85	.39	....	.29
1919	3.96	....	....	....	4.36	2.62	....	....	....	....	....	4.96	....	....	2.05	1.01	1.51	.92	1.58	....	.88	2.50	1.16
% Increase 1917–1919	43				25	–3									48	77	136	84	76		126		300

Year	Curb Hdrs. Lin. Ft. Cy. or Rw. Ar.: Redressing 1½" from Top of old Stone Curb	Per Lin. Ft. City Ar. Conc. Curb: 6" Wide in Place	Reset	Old Stone Curb & Circles Redressed and Reset	Old Stone Curb & Circles Redressed in Place	Old Stone Curb & Circles Reset in Place.	6" Gr. Curb Circles In Place	Miscellaneous Per Sq. Ft. City Ar.: Removing and Renewing Cement Footways	Removing & Renewing Brick Footways	Per Cu. Yd. City or Rw. Ar.: Old Flagstone Red. & Reset on Sand Base	Concrete in Place	City: Grading	Rw.: Grading	Each City: Old Gutter Stone Red. & Set as Feeders	Sq. Yd Rw.: Mixed & Place Cement Grout in Ballast in Steam Railway Area.	Old Material Per Sq. Yd. City or Rw. Ar. Will Purchase: Old Cobble & Gutterstone	Lin. Ft. City: Old Flagstone	Old Curb Stond.	Ton. City. or Rw. Ar.: Old Cast-Iron Gutter Plates
1916	.24	.52	.21	.37	.24	.21	2.25	.10	.00	.13	5.00	.94	.96	.63	.30	.0054	.0093	.0093	4.91
1917	.28	.67	.23	.48	.33	.31	2.61	.13	.00	.19	5.37	1.44	1.32	1.50	....	.0020	.0055	.0055	6.95
1919	.40	.87	.41	.70	.41	.39	....	.26	.22	....	10.40	2.47	2.80	1.67	....	.0024	.0063	.0063	6.75
% Increase 1917 to 1919	43	29	79	46	24	26		100	144		94	71	112	11		20	15	15	—3

The price quoted on sheet asphalt paving without a base is the bid we usually receive for repairs in connecting one improved paving with another, and should not be considered as a fair price on a large amount of this type of paving where the yardage would justify a more reasonable figure. The State Roads Commission has received a bid of $1.35 per square yard for sheet asphalt paving, 1½-inch wearing surface, 1½-inch binder on a concrete base already installed for use on the Washington Boulevard, where the paving necessitates an average 10-mile haul from the plant to the location of work.

The prices for vitrified block paving are for alleys only, as no bids were advertised for paving an entire street with this type of material. No contracts were advertised for any new granite block paving or any wood block paving, except on concrete alley work where 3-inch x 3½-inch wood block is used to pave around manholes. The large increase in price of old granite block or vitrified block headers is due to excessive bids received in two contracts. We did not use this type of headers on these contracts, as the price was exorbitant; in its place we used a curb header. The price for cement concrete paving in the above table is that received for public alleys. For paving private alleys where many are narrow and blind, the average price for thirteen bids involving an expenditure of $400,000 was $2.25, which is an increase of 40 per cent over those received in 1917.

The coöperation between the contractor and the city officials to reduce prices and the percentage of increase in prices for this year leads us to the question of what effect the increase in prices has had on the selection of materials. This is answered in a few words—more asphalt paving. There will be no granite block paving or vitrified block paving (except gutters and alley returns) laid in Baltimore this year on account of the excessive cost of the blocks themselves, due principally to the high freight rates. All liners along rails are redressed granite block with a cement filler, as the city has the old block, while the cost of wood block is too high to permit their use as liners. Paving in railway area is sheet asphalt with granite blocks redressed between the outer rails at main street crossings.

For alley paving we continue our standard of 1:2:4 mix concrete with ¼-inch expansion strips not more than 100 feet apart. The policy of the city in using a 5-inch base for light traffic streets and a 6-inch concrete base for all others is being strictly adhered to, except that in a few instances, due to very poor subgrade, an 8-inch or 10-inch base was used. The so-called advantages of a heavier base are not enough to cause the officials to adopt it as a standard.

The final synopsis is that Baltimore is paving in 1919 as in 1917, but in mileage of streets paved it is obtaining only about 60 per cent, chiefly on account of high labor costs. More and more cities are realizing that the present high prices are not going to recede, and hence are pushing their paving programs so that pavements may not wear out before repairs are begun.

Poison Essential in Anti-Rat Campaign

Barium Carbonate Proves Effective in Norfolk, Va.

Good results were obtained recently in a rat eradication campaign in Norfolk, Va., coöperated in by the Bureau of Biological Survey of the United States Department of Agriculture, and the city health department. Methods of extermination recommended were systematic trapping and poisoning. An excellent poison bait was found in barium carbonate rubbed into the edible part of slices of cantaloupe. Other very effective baits, with barium carbonate, were sliced tomatoes rolled in the poison, and green corn, canned corn, ground meat, and ground cheese, mixed in the proportion of one part of barium carbonate to four parts of bait. These poisoned baits were placed in the rat runways two or three nights in succession. After poisoning operations much permanent relief may be obtained by following up with systematic trapping, but in an initial campaign of this magnitude poisoning operations are essential.

New Concrete Dam of the Oklahoma City Water-Supply

The Work Begun in February, 1917, Is Now Practically Complete

IN May, 1916, after a number of lengthy reports by well-known engineers, a bond issue was authorized for Oklahoma City to secure a new and adequate surface water-supply. Prior to that time, the sole source of municipal water was the North Fork of the Canadian River, which winds thru the city and at times during the summer completely dries up. A shallow pool had been formed at the pumping station, where every drop of water flowing down the North Fork was impounded and pumped to the city. This water was of very poor quality, being practically always turbid from the gumbo which is so common in the vicinity. At several times a water famine was threatened, and even the fire protection of the city became precarious.

Many of the manufacturing establishments thruout the city used artesian well water, which can be secured by drilling. This was particularly the case in the packing town district, where a number of large meat-packing establishments are located.

The new water-supply, which was continuously fought for and advocated by the Chamber of Commerce, is secured from the North Fork of the Canadian River at a point seven and one-half miles west of the city. At this point a concrete dam of the Ambursen type was begun on April 22, 1918. When the last section is closed, the water will rise and form a circular impounding reservoir, two miles in diameter, with a capacity of seven billion gallons.

THE OKLAHOMA CITY, OKLA., RESERVOIR DAM UNDER CONSTRUCTION

This reservoir will be one of the largest in the Southwest, and will furnish a supply of water five times as great as that required by the present population of Oklahoma City. This excess storage capacity is merely incidental, and was decided upon when it was found it would be cheaper to dam the entire lake area than to restrict the reservoir to a smaller size. A wide strip of land has been purchased by the city around the reservoir as a sanitary precaution against undue contamination. Within this area a driveway is to be constructed, which it is expected will become a favorite trip for automobilists.

WHAT PLANS ARE YOU MAKING FOR FIRE PREVENTION DAY, OCTOBER 9? See page 251.

Management of Municipal Water-Works

The Introduction of a Budget System, Metering and Water Waste Surveys Have Increased the Economy of Operation of the Sault Ste. Marie Water-Works

By W. M. Rich
City Manager, Sault Ste. Marie, Mich.

THE Sault Ste. Marie, Mich., water-works are owned and operated by the city. The pumping station is located on the St. Mary's River, about four miles west of the heart of the city. The plant consists of two 5-million-gallon Holly steam pumps and two 150-horse-power Morrison suspension boilers. The pumps have been in service sixteen years and are in very good condition except for the wear and tear that would naturally occur in that length of time.

The intake crib is located on the south channel bank of the St. Mary's River, about 1,500 feet from the shore, in approximately 32 feet of water. The intake pipe is 36 inches in diameter and is laid deep enough to feed the pump well by gravity. The water may be pumped either from the well or from the intake pipe direct. The pumps discharge into a 24-inch main leading to the city. This discharge pipe is equipped with a Venturi meter and a register-indicator-recorder instrument supplied by the Builders Iron Foundry.

Danger From Contamination Minimized

From the above description it will be noted that there is no question about the abundance of the water-supply. However, as to its purity, there is a potential danger of contamination owing to the great traffic that plies the river during eight months of the year. Then, too, during the spring when the ice is going out there is danger of pollution, and again in September when the surface waters from the large areas draining into Lake Superior begin to be felt.

To overcome any possible danger from contamination of the water from any of the above-mentioned sources, we have installed a solution-feed, automatic-control chlorinator. We have equipped a laboratory where daily tests of the water are made, and in this manner every precaution is taken to protect the health of the people. Since the chlorinator was installed, about fourteen months ago, there has been only one case of typhoid fever contracted in the city, and in tracing the case we learned positively that it could not be attributed to the water.

The Operation of a Municipal Water-Works

In dealing with a modern water-works system, there is a great variety of features that enter into its make-up, and in discussing briefly such a plant as operated municipally, it would be well to adopt a classification for this discussion. While water-works plants may vary considerably in different parts of the country, and suggestions applicable to one plant may not apply to another, the following classification will fit very nicely the plants with which I am most familiar.

The physical features of a water-works system may be broadly divided into supply to pumps, pumping station, water-mains, service connections and meter services. In a plant such as the one at the Soo, the supply to pumps simply includes the intake, the pump well and the chlorinator. However, in some other plants, the "supply to pumps" department might have to be subdivided so as to embrace sedimentation tanks, sand filters, and softening apparatus. The pumping station, service connections and meter services would not vary materially in any water-works system, but in some cases the distribution system might have to include stand-pipes and reservoirs.

In addition to the physical features of a water-works system, there are the department for taking care of the revenue collection, and the department to provide for interest and retirement of bonds. In my opinion these last two divisions are very important, and right here is where the danger lies when a water-works system is opened and operated by a municipality. When a plant is municipally operated there is a tendency to make a political foot-

ball out of it, and at each change of administration there are liable to be changes in all the important offices in the department. As a consequence, there is no fixed responsibility or authority, the revenue collections are neglected, rates are not adjusted to meet conditions, and in many instances the funds for retiring bonds are lost sight of completely.

In order to make a success of the system, there must be some one person to hold responsible, and the authority must be undivided. Under the commission-manager plan of government, this system of conducting a water-works system is possible, and there is absolutely no reason why the system should not be a profitable and well-managed enterprise.

A Budget System Essential to Success

In order to operate a municipal water-works system successfully, a budget system must be adopted and strictly adhered to. The costs of operation and maintenance must be very carefully kept, and from these records the question of proper rates determined. As an example of the budget system as applied to the Soo Water Department, the previous outline takes care of each division very adequately.

These divisions are themselves divided into expense and capital outlay accounts according to the budget classification. Expense comprises all items of expenditures necessarily incurred for current administration, operation and maintenance of the several departments; those for which the funds are reimbursed; and those for materials and equipment in the nature of renewals or replacements which do not add to the capital assets of the corporation.

The Expense Classification is in turn divided into Personal Service Expense, which is the cost of direct labor of persons in the regular or temporary employment of the corporation not chargeable to Capital Outlay; Contractual Services, which are activities performed under express or implied agreement, inviting personal service plus the use of equipment or furnishing of commodities; Operating Supplies Expense, which is the cost of commodities of a nature that after use show a material change in, or an appreciable impairment of, their physical condition, and rapid depreciation; Materials for Maintenance Expense, charges for commodities of a permanent nature in a new, unfinished or finished state, entering into the construction, renewal, replacement or repair of any land, building, structure or equipment; and Capital Expense and Contribution, which consists of rent, taxes, insurance, interest, retirement of bonds, contributions and pensions.

Capital Outlay includes all expenditures which increase the capital assets of the corporation. This includes land and land improvement, buildings and public improvements, teaming equipment, motor vehicles, furniture and fixtures, and any other additions to equipment which may be necessary and useful in the operation of the corporation, and which may be used repeatedly without appreciable impairment of their physical condition and have a calculable period of service.

In arranging the budget for the year, all of these accounts are taken into consideration, and the total appropriation is carefully prepared. The receipts are also carefully estimated, and the estimated surplus is thrown into the departmental division for interest and retirement of bonds.

Increased Costs Make Accurate Accounting Vital

The need for accurately accounting for the expenditures of the funds of a water-works system is obviously greater now than at any previous time, owing to the fact that the cost of everything entering into the operation and maintenance of the system has greatly increased in the last two or three years, while in most cases the water rates have remained the same, or, if they have been raised at all, have not been raised sufficiently to offset the greatly increased cost.

Because of the increased cost of operation and maintenance, it is more important than ever that the great wastage that occurs in practically all American cities be stopped. I think I shall be borne out in the statement that in the majority of cities a large proportion of the water that leaves the pumping station never performs any useful work. Some of it is wasted thru the ground owing to poor construction of the mains and service connections; some is wasted thru faulty plumbing and carelessness of the consumer where there is no meter; and in some cases a considerable

amount of water is wasted in the winter time where it is necessary to leave the faucets open to prevent freezing. All of this wastage means a great loss to a city financially, besides reducing the pressure and causing a diminution of the supply available for fighting fires.

Water Waste Inimical to Economical Operation

In my opinion, too much stress cannot be laid upon the wastage and leakage of water. It is a comparatively easy matter to detect and repair the larger proportion of the leaks in the distribution system by means of a systematic and comprehensive survey and the use of suitable equipment for the purpose of detecting leaks. The stopping of the waste of water by a thoughtless public is, however, a much more difficult matter. Where a great number of the domestic consumers are on a flat rate, it has been the custom in the past to make a house-to-house inspection and instruct the public in the correct use of water. This is not particularly successful, because wastage stopped to-day may begin again soon and continue until the next inspection. I do not mean to say that the majority of the people deliberately waste water, but they do not realize what a small leak will amount to in twenty-four hours and consequently do not give the matter much thought. The only practical method of stopping excessive waste is to install meters on all services.

Metering Checks Waste

The reason for metering all services is two-fold: first, it is the only fair and equitable way to sell water; and, second, it is the only practical way in which to prevent waste. Where cities have been completely metered, they have been successful in checking the waste.

Once a city has started out on a definite program of metering all services, it is confronted with the problem of determining a fair and equitable meter rate. As an example of what this problem amounts to, I will give a brief discussion on the conditions existing in Sault Ste. Marie at the time the commission-manager plan went into effect and we were confronted with the fact that, owing to the increased costs, the revenue from the water-works department ceased to be sufficient to meet operating and maintenance costs.

Practically all the large consumers of water were metered at that time, and a number of the residences, amounting in all to about 10 per cent of the total number of services. No study had ever been made, however, of the probable legitimate use of water as compared with the total amount pumped. A careful study was therefore undertaken in order to determine as accurately as possible just what the distribution was, and an effort was made to secure information that would enable us to adopt rates that would be fair to all. The average daily pumpage was approximately 3,500,000 gallons, which, based on a population of 14,500, amounts to 240 gallons per capita daily. This average daily pumpage has been reduced to 3,000,000 gallons, or 207 gallons per capita daily. The latter figure is too high, but it proves conclusively that some leaks and wastage have been stopped. After determining approximately the amount of water that should be used, I found that over 50 per cent of this amount was consumed by manufacturing and industrial plants.

Determining Equitable Meter Rates

With the information obtained, a careful study was made to determine upon a schedule of fair rates chargeable for metered services. The meter rates finally decided upon were based upon the New England Water Works Association form of rate. The schedule recognizes the principle of the sliding scale and provides three rates for users up to 1,000,000 cubic feet per quarter. For consumers using over 1,000,000 cubic feet per quarter, a straight rate per 100 cubic feet is provided.

In addition, a service charge is provided for the privilege of being connected to the mains, but this does not include the use of any water. This charge is an alternative for the minimum rate and, I believe, represents a more logical and just arrangement. Under the service charge a specific amount is collected for the service and the meter, regardless of whether any water is drawn or not. If water is drawn, it is charged for, and the amount charged for water used is added to the amount of the service charge.

The service charge is made up of the following items:

First, a sum per annum representing approximately the cost of reading the meters, keeping the records, making out the bills, etc. For meters read quarterly, it is estimated that $1 per annum is a sufficient allowance.

Second, an amount which will represent the approximate value of water which passes a meter without being registered. The amount lost per service will range from nothing to 13 cubic feet per day for a ⅝-inch meter. On this basis a charge of $2 per annum is allowed for a ⅝-inch meter. The charges for the large meters are proportional to their relative capacities.

Third, an amount which will give a reasonable return on the money invested in the service and the meter. It is estimated that 10 per cent is a fair allowance for the depreciation in the service pipe and meter, and for the interest on the money invested in them.

The rates arrived at for the sale of water in the Soo, to meet the local conditions, are as follows:

Domestic rate, up to 10,000 cubic feet per quarter, 9 cents per 100 cubic feet.
Intermediate rate, 10,000 to 100,000 cubic feet per quarter, 7 cents per 100 cubic feet.
Manufacturing rate, 100,000 to 1,000,000 cubic feet per quarter, 5 cents per 100 cubic feet.
Over 1,000,000 cubic feet per quarter, 5 cents per 100 cubic feet straight.

The new schedule of rates is working out very nicely, and there has been very little criticism from the public, even tho the meter rates were increased over the old rates, owing to the service charge.

ACKNOWLEDGMENT.—From a paper read before the League of Michigan Municipalities .

Daylight Saving by Local Ordinance

TO THE EDITOR OF THE AMERICAN CITY:

The National Daylight Saving Association has every reason to believe that 90 per cent of the people in the United States want Daylight Saving continued. To meet the situation caused by the repeal of the Daylight Saving Act by Congress over the President's veto, we propose that cities and towns in favor of the plan adopt local ordinances restoring Daylight Saving from May 1 to October 1. The adoption of such ordinances would result in the practical continuance of the benefits of the Act next summer and thereafter.

The most direct and democratic way thru which the people can deal directly with a problem of this kind is by way of appeal to local Boards of Aldermen. The Board of Aldermen of the City of New York have already by unanimous vote expressed themselves in favor of Daylight Saving, and other eastern and western cities have similarly expressed themselves. There is no doubt that the larger communities thruout the country will vote to turn the clock forward again next summer.

The New York Daylight Saving Association is recommending that this be done a month later than was the case during the war—that is, to start on the last Sunday in April instead of the last of March, and to end a month earlier, the last Sunday in September instead of the last Sunday in October. This would give a five-months' period instead of seven. The main saving comes during the five months.

In his two veto messages, President Wilson admirably expressed the advantages of Daylight Saving, and we are now beginning a national movement to preserve those advantages for the masses of the people by local action. If mayors and other city officials will take the trouble to call a hearing on a proposal to continue the Daylight Saving Scheme by means of local ordinances, they will find a surprisingly large number of citizens unqualifiedly in favor of the movement. To a large extent it lies in the hands of the local representatives of the people to remedy the conditions caused by the failure of Congress to pay due heed to the health and comfort of the majority of our citizens.

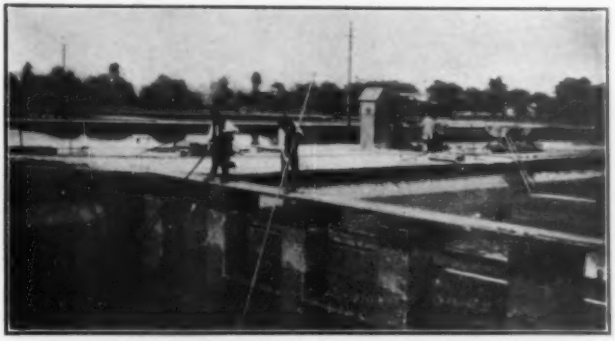
If those who favor daylight Saving had spoken as loudly as the few who opposed it, it never would have suffered from a Congressional defeat. The trouble is that the people were over-confident and did not think it necessary to address their legislators. City officials now have an opportunity to repair the damage just done. Any help that the Association can render in this connection is at their disposal.

MARCUS M. MARKS, President,
National Daylight Saving Association, 200 Fifth Avenue, New York City.

The Utilization of Sewage Sludge in Birmingham, England

Shallow Tanks and Thoro Digestion Furnish Sludge Without Odor and With Great Possibilities as an Organic Fertilizer

THE shortage of organic fertilizers thruout the world has greatly increased the expense of intensive farming, which is so important in the truck gardens surrounding all of the larger cities. One of the greatest wastes of nitrogenous matters is in sewage, and it has been claimed that millions await the man who will devise an economical method of reclaiming this material.



SQUEEGEEING SETTLED SLUDGE FROM TANKS AT SALTLEY, BIRMINGHAM SEWAGE WORKS

Sludge screen with mechanically-operated rakes for cleaning seen at right

A long step towards the economical and satisfactory reclaiming of sewage sludge has been taken in Birmingham England, under the direction of John D. Watson, who has very successfully operated the stupendous sewage disposal work of Birmingham for many years.

Settling the Sludge

After the inflowing sewage from a population of about 750,000 persons passes thru the detritus tank, from which the heavy solids are dredged by an electrically operated dredger, it flows thru the five sedimentation tanks working in parallel, each with a capacity of slightly more than 1,000,000 gallons. The crude sludge retained in the sedimentation tanks alone amounted to 1,523,000 cubic yards during the past four years, or an average of 380,750 cubic yards per year, the whole of which was transferred to the 39 sludge digestion tanks or lagoons possessing a total capacity equal to 28,250,000 gallons.

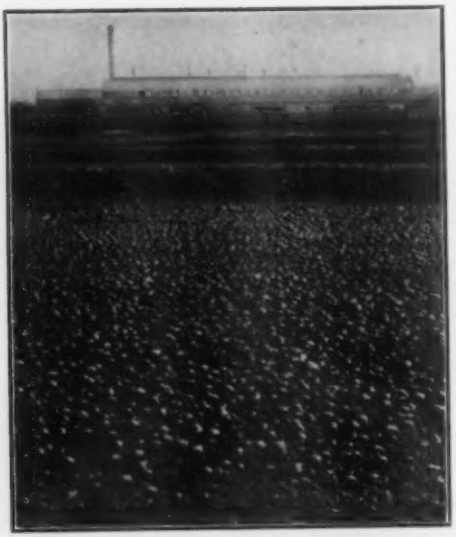
The density of the sludge removed depends chiefly upon the frequency of the cleaning operation. In 1915 the tanks were emptied once in two or three weeks, when the average water content of the sludge was 87 per cent, whereas the cleaning operation during the last four years yielded sludge with a water content of about 92.5 per cent.

Primary Sludge Digestion

The sludge from settled sewage of the Saltley, Birmingham, plant is squeegeed to the sumps, is screened by bulb rails placed 8 to 10 inches apart which are cleaned by mechanically operated rakes, and then pumped to a great digestion tank, where for about two months it undergoes septic action, which reduces the volume by about 25 per cent.

The digesting tanks used at first consisted of an existing installation of 20 tanks, 16 of them with an aggregate capacity of 4,500,000 gallons, and 4 having a total capacity of 2,700,000 gallons.

For the first two years the digestion operations were conducted in two stages in this installation of 20 tanks. The 16 tanks were used for primary digestion, and the 4 larger ones for the secondary digestion. Two stages were adopted, as it was found in the very early days that vigorous fermentation was better maintained in this way, and tank space was saved to such an extent by pumping from one tank to another that the second pumping was economical when compared with the prospect of an increased capacity. It was soon discovered, also, that inoculating raw sludge with ripe sludge obtained from the secondary tanks had an excellent effect upon the "speeding-up" pro-



THE PRIMARY SLUDGE LAGOON WITH ACTIVE FERMENTATION IN PROGRESS. THE HEAVY SCUM IS COVERED WITH LARGE BUBBLES

cess. Further, temperature was too obviously a beneficial factor in the success of the process to be ignored.

In cold weather the sludge is transferred by the main set of pumps from the particular sedimentation tank whose turn it is to be cleaned out into the selected digestion tanks. Simultaneously, some of the ripest of the available sludge is forced by a small pump into the same delivery main in the proportion of 1 to 4, thus inoculating at the earliest possible moment the fresh sludge with fermentative organisms. In addition, steam from one of the boilers is injected into the delivery main to produce temperature conditions most favorable to fermentation. In moderately warm weather, steam injection is abandoned, and during the heat of summer neither inoculation nor steam injection is used. The biological factor governing the digestion process must necessarily be somewhat complicated, and it is only by the most careful observation of the conditions which bring about the right balance of living organisms that success can be attained.

The sludge, which varies constantly in character, amounts to about 1,000 tons per day, and is drawn thru a locality literally surrounded with dwelling-houses, factories and shops. Formerly this gave rise to loud and serious complaints; but since the intake and discharge pipes of the sludge digestion lagoon have been placed beneath the heavy scum, there is little or no trouble from odors.

Functions of Lagoons

Five miles below the Saltley, Birmingham, plant are the Minworth works, which form part of the installation of 39 tanks. These were formed by surplus soil from the trickling filter site and dry sludge from the drying-bed area, and they perform three functions: first, they give time for the completion of the fermentation process; second, they permit, with almost no detriment to the installation, the admission of humus from the trickling filter, flushings from tanks, and flushings from distributing pipes; third, they act as decanters of supernatant water.

The first function is, of course, the primary purpose of the lagoon. The average requirement for digestion for the past four years has been equal to a storage of about four months. It has been proved conclusively that sludge dries more rapidly when the digestive process has been carried to exhaustion, before it is pumped to the drying area; hence the economy of ample primary tankage.

The second function is the most important. The "humus" or mineral residue from the trickling filter, like the sludge discharged from activated-sludge plant, is a valuable fertilizer. At first it was decided that the humus might be pumped back to the detritus tank; but, inasmuch as this was five miles away, it would not be economical. Second, it was thought that a second lagoon might be set aside for the humus, but experiments showed that injection into the sludge lagoons and mixing with large proportions of well-digested sludge was far more satisfactory.

Water rises to the surface of the lagoon when fermentation is exhausted, and may readily be decanted thru the frame shown in the illustration. When it is recalled that by reducing a sludge which is 90 per cent water to an 80 per cent sludge, one-half of the water is removed, the importance of decanting as much liquid as possible is evident.

The Drying Beds

The completely digested sludge is pumped direct to the drying beds, which are immediately adjacent. The drying beds con-

THE SECONDARY SLUDGE LAGOONS WHERE WATER IS DECANTED TO REDUCE WATER CONTENT OF SLUDGE

sist of plots of ashes 150 feet square, with a total area of 54 acres. All the plots are under-drained with 4-inch agricultural tile, in herring-bone fashion, which conveys the water to a sump, whence it is pumped to trickling filters. Each drying bed is formed by earth banks 2 feet high, and the area is provided with a system of small gage tracks for the removal of the dry sludge.

The time for drying varies with the weather, and when the sludge has become sufficiently dry to be lifted in lumps, it is taken to the sludge dump, which is 15 feet high and several acres in extent.

Utilization of Nitrogen

With the object of recovering from the dry sludge nitrogen and other products of distillation, boat-loads of it have been sent to the Saltley gas works each week for some time. Altho the results cannot be definitely stated until more producers are installed, still the engineer of the gas works states that he is willing to pay about 75 cents a ton for the sludge delivered at the Saltley works.

With a view to securing all available fertilizer elements possible from the sludge, the directors have recently entered into a contract with a fertilizing syndicate under which the syndicate agrees to treat about one-half of the Birmingham sludge with a view to recovering fats and fertilizers. Work on this was upset by the outbreak of the war. However, work is to be begun again shortly, and some very interesting and valuable results are expected. The success of this work is being watched with great interest by sewage engineers thruout the world.

Other Work in England

In Tadcaster, England, a centrifugal machine for the removal of suspended matters from crude sewage has been developed with considerable success. This eliminates the necessity of large sludge lagoons, and it is claimed that these machines are reducing suspended matters in a sewage to 10-20 parts per 100,000. The sludge produced will not contain more than 70 to 75 per cent moisture, while in the investigations at Tadcaster it has been found that the nitrogen content was 4 per cent, as against 2 per cent for the local precipitated tank sludge.

A fifteen-year lease has been granted recently to a company that will take and dry all the sewage sludge pressed cake at the Halifax works. This dried product will be treated for the recovery of grease and for a fertilizer base.

A 15-FOOT BANK OF DRIED SLUDGE, ACRES IN EXTENT, AWAITING THE DISCOVERY OF A CHEAP METHOD OF CONVERTING IT INTO FERTILIZER

Private and Municipal Central Station Lighting and Power Plants in the U. S.

STATE	Total Number Private and Municipal	Number Generating	Number Purchasing Energy	Hydro-Electric Plants in Whole or in Part	Number Having Day Service	Number of Municipal Lighting Systems	Number of Municipal Systems Purchasing Energy
Alabama	63	60	3	10	42	33	2
Alaska	12	12	0	7	10	0	0
Arizona	30	27	3	8	23	2	1
Arkansas	79	75	4	3	50	19	0
California	91	59	32	86	68	19	12
Colorado	60	47	13	28	47	11	1
Connecticut	39	30	9	17	33	3	1
Delaware	12	9	3	0	6	6	0
District of Columbia	2	1	1	0	2	0	0
Florida	84	78	6	3	49	25	1
Georgia	151	125	26	27	96	98	20
Hawaii	5	4	1	3	3	0	0
Idaho	37	28	9	42	24	7	3
Illinois	241	198	43	17	158	85	4
Indiana	197	148	49	12	139	71	17
Iowa	214	159	55	30	177	92	27
Kansas	248	202	46	12	186	142	33
Kentucky	99	92	7	2	51	23	2
Louisiana	63	59	4	0	45	29	0
Maine	85	68	17	70	57	3	0
Maryland	45	34	11	8	28	9	1
Massachusetts	123	72	51	29	100	37	21
Michigan	197	187	10	116	135	91	4
Minnesota	213	178	35	34	160	115	22
Mississippi	84	84	0	0	45	43	0
Missouri	235	209	26	6	140	72	5
Montana	54	49	5	26	31	6	0
Nebraska	225	192	33	35	154	123	22
Nevada	9	7	2	9	7	1	1
New Hampshire	53	43	10	40	34	3	0
New Jersey	60	49	11	8	46	14	2
New Mexico	27	27	0	5	20	4	0
New York	315	240	75	139	217	47	9
North Carolina	120	90	30	40	76	51	19
North Dakota	108	108	0	0	60	16	0
Ohio	284	225	59	21	179	121	23
Oklahoma	141	137	4	3	105	71	1
Oregon	57	54	3	49	53	10	0
Pennsylvania	243	187	56	50	183	41	4
Philippine Islands	4	4	0	0	3	0	0
Porto Rico	5	4	1	2	2	1	1
Rhode Island	11	5	6	2	10	2	2
South Carolina	75	68	7	30	41	31	5
South Dakota	102	98	4	5	70	30	1
Tennessee	90	80	10	25	52	28	2
Texas	243	226	17	13	181	22	4
Utah	30	26	4	47	22	15	1
Vermont	55	39	16	55	38	13	4
Virginia	82	76	6	33	44	19	1
Washington	86	65	21	62	65	13	8
West Virginia	61	51	10	8	40	5	0
Wisconsin	265	227	38	129	188	94	17
Wyoming	29	28	1	5	18	5	0
Total	5543	4650	893	1411	3813	1821	304

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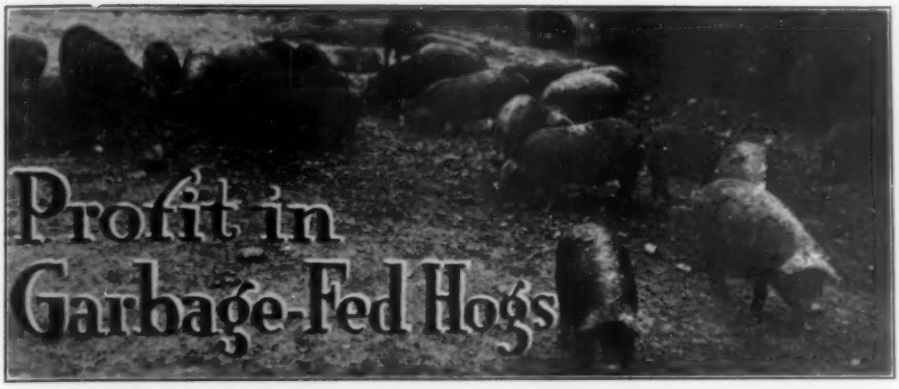


Profit in Garbage-Fed Hogs

The Experience of Lansing, Mich., Shows That Proper Care Increases Revenues

By E. C. W. Schubel, D. V. S.
Superintendent, Garbage Department and Hog Farm, Lansing

THE question of garbage disposal has been a serious one for years, not only in Lansing, but in other cities as well. Various methods have been tried out. Burial of garbage was found too costly, and disposal by private concerns under contract has often failed. Not until the present system of disposal by feeding to hogs was inaugurated under municipal control did the garbage question begin to be less troublesome.

Important Points Regarding Methods

To begin with, every collection system should be municipally controlled. The method used in Lansing is the "can collection" system: the collector takes up the full can and leaves an empty one. This system is an advantage to the householders because they have no cans to wash, but is undesirable to the city from the standpoint of economy. It costs the city more than $1,500 a year to wash and disinfect the cans. Can collection has another disadvantage: a great many householders are very indiscreet in what they place in the garbage can. They put such articles as glass, broken crockery, floor sweepings and tin cans into the cans with the garbage. This cannot be detected until the cans are emptied at the disposal place.

Handling the can so often causes a rapid depreciation. Lansing is buying the cans at present from funds derived by making a rental charge of $1 per can per year. Many cans will not last a year. Freezing weather causes the greatest depreciation.

On account of the increase of requests for service since the close of the war and the increased activity in building operations, the equipment is so limited that only weekly collection is being given to the residential sections of the city, while daily collections are given to the restaurants, hotels, cafés, and other eating-places.

The Collection Equipment

The collection is made entirely with motor equipment. It includes one Duplex 4-wheel drive truck with a 3½-ton capacity, with a trailer of like capacity. When the truck is used for collection purposes it carries from 150 to 200 cans, but when used for transporting the cans of garbage from the city to the farm it will haul from 350 to 500 cans by using the trailer. This mode of transporting the garbage is used in winter or when the roads are impassable for the smaller trucks.

The equipment also includes two 1-ton Ford trucks, each with a capacity of 55 cans; two 2-ton Reo trucks, each with a capacity of 115 cans; and one 1-ton Republic with a capacity of 60 cans. To this equipment there will be added one or two more trucks during the coming year. On the Duplex truck, three men are used for collection; on the other trucks only two

A 2-TON MOTOR TRUCK USED FOR GARBAGE COLLECTION, LANSING, MICH.
The "stack" or flaring top can is used for garbage collection

men are used. At the present time the collection is being made with eleven men. The service is becoming more general, as those people living in the outskirts of the city are beginning to ask for service. It shows that people are being educated to want better sanitary conditions.

Financial Report on Lansing's System

The garbage from this city is fed to hogs. This method of disposal has been highly satisfactory, and very profitable considering the investment.

The idea of feeding the garbage to hogs was brought to realization by a number of our public-spirited citizens, including former Mayor J. G. Reutter, Alderman Lewis Neller, Alderman John McClellan, and ex-Alderman Frank Young, who backed the proposition with their money. After financial success was assured, they turned over to the city, on November 1, 1917, a herd of hogs numbering 213, valued at $4,000, and several buildings valued at $1000. Since that time additional buildings and equipment costing over $1,200 have been purchased, the herd has been increased to 400 hogs valued at over $12,000, and there is $5,000 in the treasury with which to buy more hogs. Building up the herd has been entirely dependent upon the profits derived from the sale of hogs.

A report compiled recently by the City Comptroller showed that on May 1, 1919, the project had made a profit of about $8,500. This was based on a price of about $18 per hundred pounds for the hogs, when in reality the hogs could have been sold for $20 per hundred pounds. If a sale had been made of all hogs on hand, the profit for the past fiscal year would have been more than $10,000.

As soon as the herd can be increased to 800 or 1,000 head and kept at about that number, the profit from feeding will be from $12,000 to $18,000, dependent, of course, upon a high price for hogs. There is every indication that for years the demand will be enormous from the European countries, as it will take those countries a long time to build up their herds. Cities boasting of other methods of disposal cannot show much greater profits when the investment is considered.

When a farm is purchased where the feeding may be done upon the ground, the uneaten portion of the garbage can be converted into fertilizer by plowing it under the soil and then sowing a crop on this ground. This will increase the profits from garbage disposal.

Methods of Feeding

The garbage is fed as it comes from the city directly to the hogs, upon the ground or upon cement platforms. Feeding upon the ground is preferable, as upon platforms a certain amount remains uneaten and so must be hauled away, while that which remains upon the ground uneaten may be plowed under.

The test of the practicability of the feed-

ing method of disposal is the selling possibilities of the pork produced. There is no benefit in feeding if the pork is unfit for food or if a popular prejudice will prohibit it from selling freely. If garbage-fed pork is inferior to grain-fed, the price paid by the packers, who are naturally adverse to paying full price for an inferior product, should indicate the fact. When selling our hogs on the Detroit market they have always brought the top of the market.

I have never seen any market which discriminated against hogs fed upon garbage. When cases of "softer" pork have been noted, it has generally been found that the animals were improperly raised. There is no theoretical reason why garbage should be bad for hogs. Even putrefying materials may be transformed into delicious human food; for example, lobsters, crabs, shrimp, etc., feed almost exclusively on decaying fish, and the common barnyard chicken will eat and thrive on almost all kinds of so-called filth. In the eating of garbage-fed pork, one will find the meat much sweeter in taste than the corn-fed pork.

An objection often raised to garbage-fed hogs is that such hogs are likely to be infected with trichinosis or tuberculosis. There are no data available to support such claims; isolated cases have been found, as with grain-fed stock, but this is no evidence that garbage-fed hogs as a class are any more susceptible to either trichinosis or tuberculosis than grain-fed hogs.

About one hundred animals, ranging from pigs to big sows, will eat a ton of garbage per day. This means an average of 20 pounds per animal per day. In the early summer hogs make very good gains in weight. Under proper conditions they will gain from ½ to 1 pound, and even more, per day. A car-load marketed in Detroit in the middle of June gained a little more than 100 pounds from the middle of February to the 19th of June, or about 125 days. This time included some very bad weather for hogs.

Care of the Garbage

Householders should be required to keep garbage free from cans, papers, sawdust, oyster shells, glass, etc. In Lansing, garbage mixed with any of these foreign materials is refused collection, or the can is taken up and no service given. Numerous losses can be traced to such foreign matter, particularly to the finer particles that readily become embedded in edible materials. Two objects which find their way into the garbage can in considerable quantities are phonograph needles and the very thin glass from electric-light bulbs.

Undoubtedly a great deal of the difficulty with mixed material is due to carelessness, but the admixture of the objects mentioned

THIS PERMANENT WINTER HOG HOUSE, LANSING, MICH., IS 75 FEET LONG AND IS DIVIDED INTO THREE COMPARTMENTS

During the winter, the hogs which are the nearest being ready for market, are placed in these pens and fed from a concrete platform. This type of platform and runway prevents excessive exercise.

above could hardly be from that cause. If the householder could imagine the tortures suffered by the unfortunate animals when their intestines are punctured and torn by the sharp points of glass or needles, they would join the humane society and help the city in eliminating this nuisance.

There is no sorting of garbage done on our farm. All hogs have an opportunity to get some of the garbage from eating-places. Hogs make the most rapid gains on garbage coming from eating-places, as they have the greatest variety of refuse food.

In the winter, all the cans are placed in the boiler room, where they are thawed out before the garbage is placed upon the feeding platforms or upon the ground. Frozen garbage is unsafe to feed. At the farm we have always fed raw garbage in preference to cooked garbage. In the first place, a sterilizing apparatus could be installed only at considerable expense; secondly, cooking destroys a greater part of the food value of garbage. Sterilization of garbage destroys the opportunity for selection. Hogs will balance their own ration much better than man is able to do it for them. Cooking also incorporates objectionable matter with the edible garbage.

It is not necessary to supplement the feed of garbage with grain. It would not be economical, nor would there be any particular advantage gained in the quality of the pork or the price paid. Feeding small numbers in separate pens is preferable. There is no attempt to feed any particular breed of hog. The most losses have been among the white hogs, and the least among the red ones. Raising pigs for feeding upon garbage should be entirely divorced from that part of the farm devoted to feeding of garbage. Hogs should weigh at least 100 pounds before they are placed exclusively upon the feed of garbage. Most of the feeders are bought in the larger stock-yards, where a better selection can be made.

Causes of Losses

The feeding of garbage has its discouraging features as well as its advantages. Hog cholera used to be the cause of great losses among hogs feeding on garbage, but this can easily be prevented by the serum-simultaneous method of vaccination. No hogs are placed upon the farm until they have been treated with serum and virus. The greatest losses have been due to hemorrhagic septicemia, a form of contagious pneumonia which is usually brought into the herd thru the introduction of new stock from stock-yards, which generally are infected premises. This disease can be prevented to some extent by the use of bacterins. Other losses occur from salt poisoning, vegetable poisoning, ptomaine poisoning, and mineral poisoning. Some of the losses are due to the carelessness of the householder.

Unfavorable sanitary conditions have been the cause of losses; that is, the deep mud and filth in which hogs have to wade during the rainy season and while the ground is breaking up in the spring cause the hogs to become more susceptible to disease, especially to respiratory troubles.

Sandy soil which allows the escape of the water and keeps the feeding ground free from mud is the most desirable for feeding conditions. Hogs fed on sandy soil made such gains during last spring that they were ready for market about one month sooner than those fed upon the clay soil or upon the feeding platforms.

A Comparison

In summarizing, the following comparison of garbage-fed and grain-fed hogs may be made:

1. Garbage-fed hogs show a slightly greater shrinkage in long shipments than grain-fed hogs.

2. Garbage-fed hogs dress away very little more than grain-fed.

3. With proper management, the meat produced is equal to that of grain-fed hogs and cannot be distinguished from it.

4. Garbage-fed hogs are exposed to cholera constantly, so immunization is indispensable.

5. Cholera in garbage-fed hogs may be associated with secondary infections, but can be controlled by immunization.

6. Garbage-fed hogs are not peculiarly susceptible to trichinosis and tuberculosis.

Acknowledgment.—A paper read before the League of Michigan Municipalities.

Quarantine for Social Diseases

By Walter F. Meier
Corporation Counsel, Seattle, Wash.

WHILE for many years the need of municipal regulations for the control of social diseases has been recognized as a pressing one, the absolute necessity of such regulations became apparent when considered in connection with the efforts of the Government to raise an army of able-bodied men to fight in the war with Germany. Previous to this time it had been generally deemed sufficient for the law to condemn the practice of prostitution and to punish those who engaged in the traffic. The inefficiency of this remedy to secure for the Army and Navy men freedom from such diseases became known to the most casual observer of the conditions that manifested themselves in the vicinity of the cantonments and training stations established for the mobilization and training of these men.

In this connection the Federal authorities were demanding an efficient enforcement of existing statutes and municipal regulations with the hope of minimizing the danger of the infection of men already in, or about to be called into, the service. Some communities, when confronted with the actual conditions prevailing, and realizing the possible result of a lax enforcement of law, responded to the call; some were indifferent; and some went far beyond established precedents in their attempts to effectively control and eliminate such conditions. In this last-named class was the city of Seattle, Wash.

Seattle's Situation

Camp Lewis, one of the larger cantonments established by the United States for the mobilization and training of men for the National Army, is located about sixty miles from Seattle. On Saturday afternoons and Sundays large numbers of men, off on leave, would come to the city. Those in charge of the camp, and those whose particular duty it was to look after the moral welfare of the soldiers, thought that there was a lack of proper enforcement of law in the city, and for this reason caused an order to be promulgated forbidding men from the camp to visit the city. To secure a modification of this order, the city took immediate steps not only to satisfy the officials responsible for this order that there was a bona fide effort to enforce the provisions of existing laws, but also to enact additional legislation looking toward the segregation or quarantine of persons affected with venereal diseases.

In undertaking the latter means for combating the spread of these diseases, the city entered upon an untried field so far as having any legal precedents was concerned. By pursuing this course, however, it not only secured a modification of the order referred to, but it also furnished what appears to be the first decision of a court of last resort in which the right to quarantine for social diseases was upheld or, indeed, passed upon. Because of these facts, a short review of the legislation under which the quarantine for venereal diseases was accomplished, and the reasoning of the Court in sustaining the same, may be of some interest and profit to other localities.

State Board of Health Powers

The Washington state constitution contains a mandatory provision that "there shall be established by law a State Board of Health—with such powers as the Legislature may direct." Pursuant to the mandate, the Legislature has enacted the following provisions:

"The State Board of Health shall have supervision of all matters relating to the preservation of the life and health of the people of the state. The Board shall have supreme authority in matters of quarantine, and may declare and enforce it when none exists, may modify, relax or abolish it when it has been established. The Board may have special or standing orders or regulations for the prevention of the spread of contagious or infectious diseases. * * * It shall be the duty of all local boards of health, health authorities, and officials, officers of the state institutions, police officers, sheriffs, constables, and all other officers and employes of the state or any county, city or township thereof, to enforce such quarantine and sanitary rules and regulations as may be adopted by the State Board of Health, and in the event of failure or refusal on the part of any member of said boards or

other officials, or persons in this section mentioned to so act, he or they shall be subject to a fine of not less than fifty dollars, upon first conviction, and upon conviction of second offense of not less than one hundred dollars."—Rem. Code, Sec. 5406.

"In case of the question arising as to whether or not any person is affected or is sick with a dangerous, contagious or infectious disease, the opinion of the health officer shall prevail until the State Board of Health can be notified, and then the opinion of the executive officer of the State Board of Health, or any member or physician he may appoint to examine such case, shall be final."—Rem. Code, Sec. 5546.

"The term 'dangerous, contagious or infectious diseases,' as used in this chapter, shall be construed and understood to mean such disease or diseases as the State Board of Health shall designate as contagious or infectious and dangerous to the public health."—Rem. Code, Sec. 5547.

Action Taken by State Board of Health

Under the powers granted by the foregoing provisions, the State Board of Health adopted rules and regulations defining syphilis, gonococcus and chancroid infection as "dangerous, contagious and infectious diseases," and prescribing the conditions under which persons afflicted therewith might be quarantined and released from quarantine. These rules and regulations, and the statutory provisions authorizing the same, were not complete in themselves, for they contemplated the exercise of a local power authorized by the state constitution and laws. The authority for this local exercise of power, and the manner of its exercise in this particular case, follow:

Section 11 of Article 11 of the state constitution contains the following provision:

"Any county, city, town, or township may make and enforce within its limits all such local police, sanitary, and other regulations as are not in conflict with the general laws."

Court Views as to Local Powers

Concerning this constitutional provision, the Supreme Court of the state, in the case of *Detamore v. Hindley*, (83 Wash. 322), has said:

"This is a direct delegation of the police power as ample within its limits as that possessed by the Legislature itself. It requires no legislative sanction for its exercise so long as the subject matter is local, and the regulation reasonable and consistent with the general laws."

In addition to the constitutional provision authorizing the exercise of a local police power, the Legislature expressly authorized any city of the first class:

"To erect and establish hospitals and pesthouses, and to control and regulate the same; to restrain and provide for the punishment of vagrants, mendicants, prostitutes, and other disorderly persons; to provide for the punishment of all disorderly conduct, and of all practices dangerous to public health or safety; and to make all regulations necessary for the preservation of public morality, health, peace, and good order within its limits; and to provide for the arrest, trial, and punishment of all persons charged with violating any of the ordinances of said city; but such punishment shall in no case exceed the punishment provided by the laws of the state for misdemeanors."

Seattle Adopts Ordinance

Pursuant to the authority to enact measures partaking of local police power, the city of Seattle made it the duty of its Health Commissioner to make an examination of persons taken into custody by the Police Department and suspected of being afflicted with any contagious or infectious disease, the ordinance reading as follows:

"Whereas, by reason of investigations made by the Sanitation Department and under its direction, the public welfare requires the examination of persons of both sexes taken into custody by the Police Department of the city for the purpose of preventing the spread of infectious and contagious diseases; now, therefore,

"Be it ordained by the city of Seattle as follows:

"Section 1. For the purpose of preventing the spread of contagious and infectious diseases or maladies, it shall be the duty of the Sanitation Department of the city of Seattle to duly examine in such manner and by such methods as modern science has found to be proper all persons who are taken into custody by the Police Department of the city who are suspected of being afflicted with any contagious or infectious disease or malady, and the Sanitation Department and the Commissioner of Health are hereby authorized and empowered, and it shall be their duty, to order any such persons so taken into custody to be examined for such purpose."

To meet the conditions expressly presented by the establishment of Camp Lewis and certain training stations in close proximity to the city, an existing health ordinance was amended by the enactment of the following provisions:

"Whenever it shall come to the knowledge of the Commissioner of Health of the city of Seattle that any adult therein has chickenpox, or any person therein has smallpox,

varioloid, syphilis, gonorrhœa, or any other contagious or infectious disease of a similar or different kind from that herein specified, or any disease or sickness dangerous to the public health, said Commissioner is hereby authorized and empowered, and it shall be his duty, to forthwith, whenever in his judgment it is safe, expedient and practicable, cause such infected person to be removed to and kept in a hospital, sanitarium, a separate house, or such place as may be designated by the Commissioner of Health, or as may be by law or ordinance provided therefor, and cause said person to be properly treated and cared for, and to make such other rules and regulations as may be necessary or advisable for the protection of the public health; and in case, in the judgment of said Commissioner of Health, it is unsafe, inexpedient or impracticable to remove such person to such hospital, sanitarium, separate house, or such place as has been designated by the Commissioner of Health, or as may be by law or ordinance provided therefor, it shall be his duty to forthwith establish and enforce such quarantine or other regulations as are necessary for the protection of the public from such disease.

"It shall be unlawful for any adult infected with chicken-pox, or for any person infected with smallpox, yellow fever, Asiatic cholera, bubonic plague, syphilis, gonorrhea, or any other contagious, infectious or pestilential disease of a similar or different kind from those herein specified, who shall be removed by order of the Commissioner of Health to any hospital, sanitarium, separate house, quarantine station or place, to depart from or leave such hospital, sanitarium, separate house, quarantine station or place without permission of the Commissioner of Health so to do."

Quarantine Sustained

Pursuant to the foregoing provisions the Commissioner of Health inaugurated quarantine of persons who were placed under arrest and found to be afflicted with a venereal disease. Both men and women were subjected to quarantine. Because it constituted an innovation, many thought, having been so advised by counsel, that they were being deprived of their liberty "without due process of law." Innumerable writs of habeas corpus were sued out. Applications for writs, or returns thereto by the city, were heard before the various judges of the Superior and Federal Courts. Releases were denied in all these instances. Because of the singular unanimity with which the trial courts denied releases from the quarantine, one, whose application for such release had been summarily denied, sought a writ of mandate from the Supreme Court of the state to compel the trial court "to issue a writ of habeas corpus and to proceed with the hearing thereon." The Supreme Court denied this application on the ground that, the trial court not having refused to act, mandamus would not lie to determine what action the trial court should take. (State ex rel. Woods v. Mackintosh, 99 W. 553.)

This decision, however, did not settle the law as to the power of the local authorities to maintain the quarantine under the provisions above set forth, and persons subjected to such quarantine continued to seek release thru judicial proceedings. Finally, in one of such proceedings, the trial court undertook to appoint an independent commission of physicians to determine whether or not the applicant whom the local health officer had found to be afflicted with a venereal disease, which finding had been approved on appeal to the State Board of Health, was, in fact, so afflicted. Upon the refusal of the Commissioner of Health to permit this independent commission to make such examination, the court indicated an intention to punish him for contempt of court on account of such refusal, whereupon an application was made to the Supreme Court for a writ of prohibition to restrain the trial court from visiting such punishment upon the Commissioner. This application for a writ of prohibition was granted, as more fully appears from the opinion of the court in State ex rel. McBride v. Superior Court, 174 Pac. 973. The opinion of the court refers to the state and municipal legislation herein-above referred to, and fully sustains the quarantine provisions as a proper exercise of the police power.

Regarding the authority of the Legislature to invest the State Board of Health, an administrative board, with power to define and classify diseases, and in sustaining such authority, the court said:

"It is finally contended that the law is unconstitutional, in that it delegates legislative power to the health boards, in that it leaves to them definitions and classifications of diseases.

"This court has not heretofore considered similar laws as a delegation of legislative power or authority. The legislation is that of the legislative body, but it is not always practical to meet every phase of the necessity that has called for the law by the enactment of a general statute. The Legislature may well have taken notice of the fact that the nature, virulency, and extent of territory covered by contagious and infectious diseases,

whether endemic or epidemic, are all factors to be considered in the matter of quarantine, and that, after all, the whole working plan for quarantine must depend upon the judgment and discretion of men learned in the science of medicine, and that doctors sometimes disagree. The Legislature, as well as the courts, would be helpless in such matters without resort to expert opinion, and their judgments would necessarily lie in greater or less degree in the facility of witnesses and the skill of counsel. It is most likely that the Legislature sought to avoid the confusions and delays that must necessarily follow if arbitrary classifications were attempted in the statute."

The opinion concludes with the following significant language:

"Finally, we hold that it is within the power of the Legislature, in dealing with the problems of public health, to make the determination of a fact by a properly constituted health officer final and binding upon the public as well as upon the courts."

Importance of the Decision

The facts underlying this decision render it an important one, and the decision itself is unique in that it appears to be the only reported decision sustaining the right to segregate and quarantine persons afflicted with venereal diseases. Notwithstanding the passing of the emergency that gave rise to its inauguration, this method of dealing with a condition that has in the past appeared to be an almost ineradicable evil in human society may point a way which will tend, at least, to a minimizing of its effect.

"The best defense against the venereal diseases is an offensive strong enough to wipe them out."—Connecticut Health Bulletin.

12½% Raise Suggested for City Employes

City of Seattle,
Office of the Mayor.
July 22, 1919.

TO THE EDITOR OF THE AMERICAN CITY:

You ask me for a statement as to what action I have taken in regard to increasing the pay of city employes.

This year's budget, taking effect January 1, was made in July, 1918. Between the time of its making and the time of its taking effect, the cost of living rose so rapidly that in October last year it was necessary to increase the pay of all city employes. Since that time there have been no further increases, and in the course of ordinary events no further increases under our budget system would have taken place until January, 1920. However, I felt that the cost of living was continually going up, and I therefore took it upon myself to make an investigation. I investigated far enough to learn that the average pay of our city employes was not commensurate with the present-day cost of living, and I asked our Board of Public Works to make a thoro and searching investigation and report their findings and recommendations to the City Council. This the Board of Public Works did, and two weeks ago recommended to the City Council that an immediate increase in pay of 12½ per cent be given to all city employes.

All cities want efficiency in the work of their employes, but such efficiency cannot be gained unless employes receive a fair and just remuneration for their services. I do not consider that it is fair to the employes to compel them to wait for their raise until the time set by law. If the cost of living continues to increase, I believe deficit ordinances should be passed to meet such increase, as you cannot have efficiency if your employes are underpaid.

Respectfully yours,
OLE HANSEN,
Mayor.

NOTE: Since writing the above, Mayor Hansen has resigned, but that does not lessen the force of his argument for adjustments in municipal payrolls.

Municipal Forestry in Pittsfield, Mass.

White Pines are Recommended Despite the Blister Rust

By John B. Woods

Valuation Engineer, Treasury Department; former Assistant Forester and Field Agent for Western Massachnsetts

WE all know that trees are one of the most useful and satisfying gifts of Mother Nature, and also that under modern conditions the much-abused Dame cannot always regenerate forests in the place of old ones which have been cut down. The National Forest Service performs a great and indispensable public task in administering the reserved lands set aside by foresighted men in the past, and in carrying on broad-gage educational propaganda and practical research along many lines. There are several progressive state departments, all doing the best their political and financial situations will allow to foster conservation and reforestation. Many wealthy citizens, owners of large estates, are also carrying on, with varying degrees of intelligence and success, their own plans for the future welfare of their forest lands. But, after all, one of the greatest opportunities for results that shall be daily visible to thousands of men and women is in the cities of this country.

Many cities in Europe have for many decades owned their own forests and managed them both as public recreation plants and as money-making woodlots. Of course there are exceptions; some cities do not own forests except such parks as lie within the limits of duly incorporated streets. But even such wooded areas are veritable forests in comparison with our tiny breathing spaces which we dub "parks," and they are not dotted with "Keep Off the Grass" signs except in rare cases. There are good reasons for our own lack of city forests, of course. However, the object of this sketch is neither to criticise further nor to justify our shortcomings, but to indicate briefly what one city has done and is doing to-day in the way of acquiring a stand of timber for posterity. And the most gratifying feature of this enterprise is that it has come thru to a fair measure of success without the expenditure of much money from the city treasury.

Perhaps the best way to describe the hill city of Pittsfield, seat of Berkshire County in Massachusetts, is by the simple statement that there are within the corporation limits more than a million dollars' worth of shade trees. The city also possesses a splendid water-supply, with a contributing watershed of about 3,000 acres along the northern and eastern ridges of October Mountain, some four miles or more from town. A dozen years or so ago the Board of Public Works built a reservoir of several acres half-way up the mountain, and in 1912 completed a second and much larger reservoir farther up the slope, with a concrete spillway and a rock-walled stream which feeds

FARNHAM DAM, UPPER RESERVOIR, PITTSFIELD, MASS., WHICH IMPOUNDS THE WATERS FROM THE REFORESTED WATERSHED

the lower reservoir. The two projects are splendid works of engineering in themselves, constituting a fitting monument to city progressiveness. The watershed which feeds them is partially covered with old-growth pine and hardwood and partially composed of old cuttings and farm lands, which year by year are growing up to young white pines, artificially planted. Thus the forestry idea has found its way into the water-supply situation and is being used to improve the watershed both in appearance and in usefulness.

A Forestry Committee Appointed

Always there are needed men who have both convictions and influence to put new ideas into motion toward results. The men in this particular case were two, K. B. Miller, the manager of the Pittsfield *Eagle*, and A. K. Sloper, a successful insurance man. They examined their convictions until they were satisfied that nothing was wrong with them, and then they tackled the proposition of getting the people of the city, represented by the governing body, to take an active interest in this widely talked of but little practiced business of forestry. As both were bound to see this forestry idea applied to the improvement of the watershed up on the mountain, it was but natural that in the course of a few months a committee consisting of these two was chosen by the City Council. Their financial ammunition consisted of $800 for the first year.

Starting a Pine Nursery

The State Forester advised them to buy pine seeds and establish a small nursery in order to obtain the stock for planting, so with the coöperation of the caretaker of the reservoir property they broke ground. The seeds germinated with a remarkably high percentage of vitality, and in a short time the nursery was filled with young seedlings. Then they began to die—"damping off," as the nurseryman expresses it. For a while the enterprise was threatened with complete failure, and the two men felt that they were in duty bound to pay back to the treasury from their own pockets the $500 which had been invested. They could not quit, however, without trying every remedy known, so they kept on doctoring the nursery soil with sand. Finally, after the seedlings had been handled and transplanted so often that they were all but known by name, the damping stopped and affairs took an upward trend. Since that time a third of a million transplants have been taken from the beds for planting, and an equal number are still available for use.

Combating the White Pine Blister Rust

During the last few years there has been a great deal of agitation about the ravages of the white pine blister rust thruout the eastern states. Many foresters have gone on record with the statement that white pine should not be planted in this region. Doubtless there are spots where the blister rust has ruined whole pine forests, and without doubt it will continue to be a menace as long as garden currants and gooseberries are grown in close proximity to pine plantations and so long as the wild varieties of the Ribes family are allowed to flourish in the open lands. For, as is well known, the disease is one which alternates between the berry plant and the pine tree, needing one as much as the other to carry on its life cycle of mischief. The simplest method of combating the plague, therefore, is to remove all currants and gooseberries from the vicinity of pine plantations. The Forestry Department of Massachusetts does not advise the elimination of white pine from the list of species favorable for reforestation work, for the white pine is at its best in this southern New England country, growing rapidly and offering probably the greatest opportunity for really profitable forestry work.

The attitude of the committee on reforestation at Pittsfield is well illustrated by its experience at Washington in 1917. Mr. Miller and Mr. Sloper attended the forestry meeting at the national capital that year, and during the course of the lectures a chart of the white pine blister rust was placed on exhibition. Berkshire County was heavily shaded with black, indicating that it was a veritable hot-bed of rust and ruination. The trend of the talk was all toward changing from white to red pine in these afflicted localities. Finally Mr. Sloper expressed himself.

"Out yonder," said he, "we have a submarine menace which is mighty discouraging. The Germans are sinking our ships along with those of every other self-

REFORESTING THE WATERSHED THAT FURNISHES COLORADO SPRINGS WITH ITS ABUNDANT SUPPLY

respecting nation, and they are getting hundreds of them. But we are not talking about shutting down our shipyards. Rather we are speeding them up to the limit. And we are going to build ships faster than the devils can sink them, taking all the precautions we can, of course, to keep them from getting more. And up in our county we have had during the past summer the worst experience on record with infantile paralysis. Our little folks have been dropping off at a terrifying rate. But we are not going to stop trying to raise children up there. We'll take every measure that the doctors can devise to keep the disease away from the kiddies. And that's what we propose to do with our white pine. Maybe the rust is bad, altho really the facts do not bear out the cross-hatching on that chart. But, anyway, the white pine is our best bet as a timber tree for the future, and we're going to plant every one that we can raise in the nursery, and then we'll go after the Ribes submarine bases and clean them out."

Other Forestry Problems

Of course the tree planting game is not all smooth play. There is the problem of the nursery, unless one desires to buy planting stock, which is a good plan for small enterprises, altho expensive. After the seedlings have come up and attained a year's growth they begin to crowd each other. Then one must transplant them to other beds, allowing space enough for them to continue their normal rate of growth. In these beds they develop to the age of three or four years, and then they must be used for planting if ever they are going to be used, for they soon become really large and unsuitable for economical handling. In the nursery, then, a reliable and interested man is needed. When the time comes for planting out in the open there is the question of labor, for the ordinary thoughtless laborer is no man to plant trees. The work is not difficult either physically or mentally, but it does call for patience and interest in order that each little tree shall be placed in the ground firmly and given a chance to live. The cost of putting three-year-old transplants in the ground should not exceed $8 per thousand even in hard and rough ground, and a thousand trees will replant an acre of land.

For a year or two after reforestation a project may keep its best friends in a state of anxiety, for often the trees are lazy about beginning to grow. Then occasionally a deer steps daintily thru the fields and bites off the tender top shoots of the pine. But if given a fair chance thru proper planting, they will come along after a year or two, and after five years they are surprisingly tall. From ten inches to ten feet in ten years is not at all uncommon height growth. Fire, of course, is a menace, but that is one more argument in favor of municipal forest cul-

PLACING THE TRANSPLANT IN A NATIONAL FOREST

ture. Since cities maintain close fire protection as a rule wherever they have timbered watersheds or reservoirs of any kind, they can take advantage of conditions which the lumberman must make for himself at great expense if he desires to reforest his cut-over lands. In fact, the fire danger is the one chief reason why lumber concerns do not spend more money in tree planting.

Transplanting the Trees

To return to the experiences of the committee in Pittsfield: The first two years were spent in making the nursery a "going" institution, and then began the actual planting. A yearly appropriation of $800 was secured for the work, and the first planting, done about the upper or so-called farm reservoir, consisted of putting 25,000 two-year-olds into the grass- and bush-grown hillside. The next year, and also the year after that, an equal number went into the ground. Then the figure jumped to 70,000, which showed that the enterprise was becoming stronger. In spite of our war-time difficulties of labor and the like, the year 1918 saw 75,000 trees planted about the lower reservoir, and this last spring the highest mark has been reached, 85,000 pines and spruces having been put in. This year the annual appropriation has been increased from $800 to $1,000.

Costs

Six hundred thousand seedlings of white pine, and a few spruce, grown from seed to ages of two and three years, represent a fair investment. If bought from the State Forestry Department they would have cost, at the three-year stage, $4,800, which is about one-half of what they would have cost if secured from commercial forest nurseries. In addition, the Pittsfield enterprise has on hand about $500 worth of frames and other nursery paraphernalia. Furthermore, there are planted upon the upper slopes of October Mountain, about the reservoirs, more than 300,000 trees. The total expenditure of public moneys will be, at the end of the current year, $6,600. Allowing that it costs as much to raise a tree to the planting stage as it does to plant it for future forests —which is a fair estimate, inasmuch as the stock costs the same when bought from the state as the cost of planting—we find that the planting on the hillsides has cost $2,200, or less than $7 per thousand. As the stand is about 1,000 trees to the acre, the same figure can be used on the acreage basis. The 600,000 plants in the nursery have cost, then, $4,400, less the inventory of plant equipment of $500, or $3,900, net. Of course, one-half of these trees are planted and the cost on them is a past expense, while the other half still on hand remain to be dug out and prepared for shipment to the field; but as there is money enough still unspent to do this work, our computations need not suffer from such a consideration. So the cost of raising the stock is about $6.50 per thousand. No one can complain that the money spent upon October Mountain has been wasted.

The Pittsfield Plan Worth Copying

All things considered, the Pittsfield enterprise has been proved a success. The cost has been low; and when one considers that after forty years the white pine stands may well be worth $200 at the very least—and most lumbermen predict that the next forty years will nearly double the value of standing timber—he cannot but feel that tree planting is a sensible business for anyone owning productive, well-protected land.

FORWARD STEPS
REPORTED TO THE AMERICAN CITY
BY MUNICIPAL OFFICIALS & DEPARTMENT HEADS

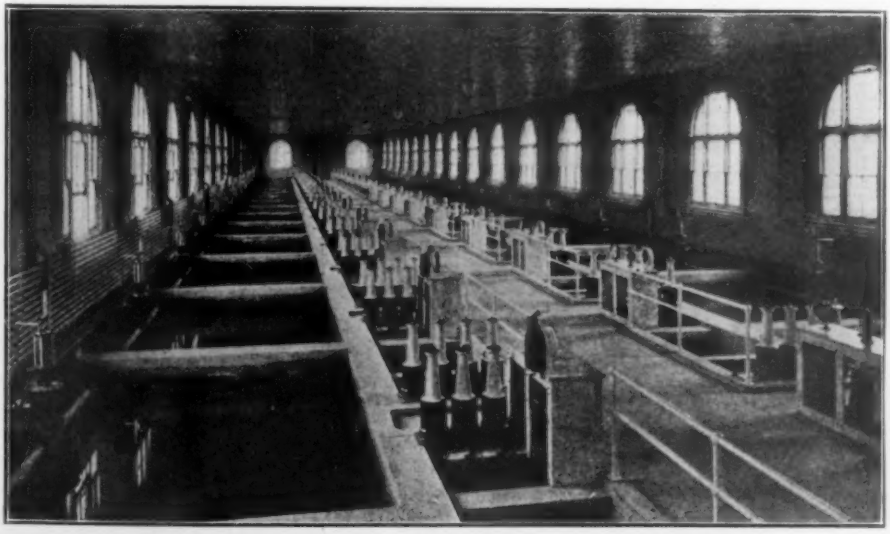
- WATER - DEPARTMENTS

Efficient Equipment Keeps Down Costs

TOLEDO, OHIO.—The city of Toledo is just beginning to derive full benefit from the very efficient water-works equipment which it has been installing during the last three years. This up-to-date equipment has in a large measure been responsible for offsetting the increased labor and material charges. No attempt has been made to do without equipment or supplies which were necessary for the operation of the plant; and, in fact, both financially and as regards the physical elements of the equipment, it is the belief of those who have studied the conditions carefully that the Toledo water-works are in better shape to-day than at any time in the past ten years.

The receipts for the year 1918 increased slightly in excess of 4 per cent, while the total disbursements were 2 per cent less than those of the previous year. The cost of operation and maintenance increased only 3.3 per cent during the year in spite of the fact that 5.48 per cent more water was furnished than in 1917. Comparative labor and material costs have been very carefully investigated, and it has been found that labor costs for operation and maintenance have increased approximately 10 per cent, while the cost of materials increased nearly 60 per cent over 1917. In spite of these increases in cost, we were able to keep the expense of operation down to an increase of only 3.3 per cent.

The filtration plant has been completely overhauled and put in first-class condition, reliable machinery for handling chemicals has been installed, and additional pumping capacity is now being provided for the Broadway pumping station. By March 1, 1920, this station will be completely over-



INTERIOR VIEW OF FILTER HOUSE, TOLEDO, OHIO, WATER-WORKS

hauled and will then be large enough to permanently house pumping equipment sufficient to provide for a water consumption twice as large as the present requirements.

All of this improvement work has been paid for from the earnings of the Division of Water without issuing additional bonds, and, in fact, not only has the interest on the bonded indebtedness of the Department been met, but the indebtedness itself has been reduced during the year by $60,000.

The figures given above are very interesting, in the light of the almost unanimous demand thruout the country on the part of privately owned public utilities for increase in revenue under the guise, "war prices" or "patriotic necessities."

In an effort to account for all the water pumped from the Broadway pumping station, a water-waste survey was carried on thruout 1918 in an endeavor to locate all leaks thruout the entire city, to determine the condition of the water mains and their appurtenances, to locate all water waste, and, if possible, reduce the pumpage of water for which no revenue is secured. From the results already obtained, it is believed that the consumption of water thruout the entire city may possibly be reduced from 5 to 10 per cent. If this can be accomplished, a large saving in the operating cost of the department will be effected, and at the same time a complete and accurate record of the entire water system and its conditions will have been obtained.

DAVID H. GOODWILLIE,
Acting Water Commissioner.

• POLICE • DEPARTMENTS

Safety First Campaign Reduces Loss of Life by Half

Detroit, Mich.—The Detroit Safety First Campaign was conducted by the Police Department, the Detroit Automobile Club, the local branch of the National Safety Council, assisted by several hundred organizations, including the "Four Minute Speakers," social and business clubs, improvement associations, Detroit Federation of Women's Clubs, the different churches, the Boy Scouts, American Red Cross, Y. M. C. A., and the various city departments. The thousands of members of industrial, commercial, civic and social organizations and activities feel that they have been more than compensated for all their efforts and expense by making a success of the campaign of saving lives thru accident prevention, and are all determined to keep up the good work in coöperation with the Police Department.

The campaign was a comprehensive one. Upwards of two million advertising articles were distributed. These included pictorial illustrations showing how accidents occur—chiefly those where children are the victims—and included also the big poster which merchants were good enough to keep in their windows. One million cards containing a reproduction of the large poster on "Carelessness" and an appeal from Police Commissioner J. W. Inches, M. D., were distributed to the factory workers.

SAFETY FIRST POSTER, DETROIT, MICH.

Half a million "Safety First" buttons also were distributed and there was such a demand for them that several hundred thousand more could have been used. While all pictures were posed, yet they were exact reproductions of what the writer and the photographer saw while on the way to get a picture of 57 children at one of the public schools for the purpose of visualizing the exact number of the little ones who were killed in Detroit streets

last year. This fact is described in the pictorial folder, 500,000 copies of which were distributed to school children and others during the campaign. The pictures showing the damaged automobile were also posed to represent the exact manner in which a couple of accidents had just previously occurred. The signboard on the front of the City Hall was illuminated and a daily record was made on it of the number of accidents occurring and the number of deaths.

The ringing of bells comprised an impressive phase of the campaign. Whenever a fatality occurred thru street accident a large bell in the City Hall tolled and all the bells in the school houses, fire station, and one of the centrally located churches sounded 8 gongs at intervals of 18 seconds. This was done at 11:30 A. M. and 3:30 P. M., covering the 24-hour period, but they were not rung unless a fatality occurred. Just before the bells were rung the occasion was used in the schools by the teachers to give appropriate short talks. In order to avoid having any sensitive child fearful that some member of its own family was the victim, the chief details of the accident, including the name of the victim, were told to the children. The success of this ceremony was admitted on every hand. Upwards of 22,000 talks on "Safety First" were given by the teachers in the public schools and a police officer also gave daily talks to school children in coöperation with the school board.

Entertainments and talks on "Safety First" were given every night at the Liberty Forum, located in the heart of the city, the feature of these entertainments being the showing of the "Safety First" film vividly picturing the dangers of the streets. Nine copies of this film were circulated in motion picture theatres thruout the city and shown daily.

RE-ENACTING A FATAL ACCIDENT, SAFETY FIRST CAMPAIGN, DETROIT, MICH.

ACCIDENT RECORD ON CITY HALL, DETROIT, MICH., DURING SAFETY CAMPAIGN

Twenty-five thousand leaflets on "Safety First" were dropped from army aeroplanes over Detroit, 200,000 window cards were distributed and hung in the windows of residences thruout the city; 25,000 of the large posters entitled "Carelessness" were displayed at factories on billboards and other public display places; many thousands of the stickers entitled "Safer Streets" were displayed on automobile windshields; 1,000 "Safety First" oilcloth banners entitled "We are helping to make Detroit's Streets Safe" were carried on private and public vehicles; and "Safety First" posters and signs were displayed at the approach to all boatline docks and on ferry and pleasure boats. A fire department truck and police patrols toured the city daily, displaying large "Safety First" banners.

"Safety First" parades were held daily at noon with the following participating: Mounted Police, Police Drum and Bugle Corps, Patrol and Fire Department Apparatus with "Safety First" banners on frames, members of the "Safety First" Committee, and bands from various industrial plants.

A memorial tablet, giving the names, etc., of the persons killed in street traffic accidents during the period of the campaign,

was erected on the front of the City Hall the last day of the campaign. Mayor James Couzens presided at the ceremony and two police buglers sounded taps from the City Hall steps. A clergyman was also engaged for the occasion to give an address on "Safety First."

During the month of April, just before the campaign started, street accidents caused 25 deaths and 352 injuries, whereas during the 32 days of the campaign there were only 187 accidents and 11 deaths.

The Safety First Committee and its friends are confident that the warnings so earnestly expressed during the campaign, both in the press and in talks, will continue always to be beneficial; that the campaign will prevent accidents, and that it will save children and others from injury and death. Observers say that no public proposition in recent years has received greater publicity than the "Safety First" campaign received. It has been a revelation, showing coöperation on the part of countless thousands of people to such an enormous extent that the reckless driver and the careless pedestrian must feel that they comprise an extremely small minority.

The Michigan Legislature, at its last session, passed a drivers' licensing law, under which the driver of every motor vehicle in Michigan must be licensed.

As a part of the Safety First campaign, from Monday, July 21, until August 2, police officers were stationed at 50 public schools, where they issued applications for licenses to operate motor vehicles in this state and conducted an examination of all applicants. The Department took this opportunity to emphasize the important safety rules of the street and to appeal to the public to coöperate in the efforts that are being made to cut at least in half the present annual record of 200 street traffic fatalities in Detroit. On the back of the application form is a copy of the law which provides for the suspension of a license after conviction for any one of three violations, namely:

Reckless driving
Driving while under the influence of liquor or drugs
Leaving the scene of an accident without giving name and address

Subsequent to the printing of this law, at a special session of the legislature, the minimum age was fixed at 14 years, which is in conflict with the common sense of the legislatures of all the other states and which was done by the rural representatives altho vigorously opposed by Detroiters.

GEORGE A. WALTERS,
Deputy Commissioner.

RECREATION DEPARTMENTS

Junior City Government Meets Regularly in City Hall

Newport, R. I.—The charter of the junior government states its object as follows: "To promote activities which shall occupy the leisure time of junior residents of Newport in such a way as to be of the greatest benefit to themselves and the city; to promote and assist in the regulation of athletics, games and physical training; to assist in the orderly conduct of playgrounds, school grounds, parks and recreation centers and to render every possible aid to the city government in enforcing the observance of the ordinances, especially on the part of its junior residents."

In order that the juniors may appreciate some of the problems which are confronting the seniors, city officials have explained their departments to the junior council. The junior officials and voters have made visits to the various industries of the city, the banks, factories and wholesale houses, receiving the chance to see their elders at work when they are at their best. The seniors, too, are beginning to see some of the problems which confront the youngsters. The juniors challenged the seniors to a baseball game. One has been played and three more are scheduled. The receipts will go to the junior treasury. They have the taxing power but have not yet exercised it.

The police force is organized as a Junior Guard under military discipline and drill; its members pledge themselves to observe the laws of chivalry; to be brave, trustworthy, honest, loyal and obedient; to be friendly and cheerful and to protect those weaker than themselves; to have respect for property and to protect it. Each guard is under the command of an adult Advisor, who drills them and to whom each guards-

JUNIOR MAYOR ADMINISTERING THE OATH OF OFFICE, NEWPORT, R. I.

man reports himself when he violates his pledge. The Junior Mayor is commander-in-chief of the guard when they march in formation, and appoints a chief to act as his executive officer. The latter has the duties of chief of police. We have several returned A. E. F. officers who act as advisors; among these are Lieut. Wm. P. Sheffield, Jr., and Lieut. Wm. R. Peckham. The junior guard see that the laws and ordinances of the junior city government are enforced. Rules of safety, fire prevention, rules against cigarette smoking, etc., are among the ordinances.

There is a judiciary department with a grand jury, judges, prosecuting attorney, etc.

The success of the junior government is due in large measure to the Advisory Board, of which Mayor J. P. Mahoney is chairman, and which numbers among its other members H. W. Lull, Superintendent of Schools, J. J. Conron, Manager of Armour Co., H. A. Titus, furniture dealer, three lawyers,—Wm. R. Harvey, Lieut. Wm. P. Sheffield, Jr., and Lieut. Wm. R. Peckham,—Dr. Norman MacLeod, and E. V. Murphy and T. J. Williams, of the Naval Training Station. The fact that these very busy men are interested enough to spend their time on the project makes the youngsters think seriously of the matter. Without the co-operation of the school teachers it would be impossible to achieve results.

Boys from all parts of the city register, those who attend school registering in their schools. They elect one councilman for every ten registered voters. These councilmen meet in city hall and elect the city officers and the board of aldermen. Meetings of the council are held twice a month and meetings of the aldermen every week. They meet in the City Hall, transact business, and learn to speak in public. We have a joint debate scheduled between the senior and the junior government.

Now that the Susan B. Anthony amendment has passed Congress, suffrage will be extended to the girls or they will have a junior government of their own.

ARTHUR LELAND,
Superintendent of Recreation.

Another Reason for Daylight Saving

SACRAMENTO, CALIF.—Made possible by the daylight saving plan, twilight concerts on Sunday evenings are becoming highly popular as a part of Sacramento's recreational and social life. These concerts, varied in character from week to week, begin at 7:30 P. M. and continue thru the twilight hours, being held in an open-air pavilion in one of the city's parks. The programs are arranged by the City Playground Department and the concerts given under the supervision and direction of this department.

Virtually the only expense to the city for conducting the concerts is in the printing of programs. Sacramento musicians, vocal and instrumental, are very generous in volunteering their services, and besides providing much enjoyment for the public, the concerts have been the means of bringing out local talent in a surprising degree.

On one Sunday the Chamber of Commerce quartet was featured; on the next, a talented vocalist and violinist of the city, then the United States railroad administration band, and so on.

In conjunction, there is community singing at the close of the concerts, conducted by a representative of the War Camp Community Service. The attendance at the concerts has never been below 4,000 and the mighty chorus arising from this mass of singers is most gratifying and impressive.

GEORGE SIM,
Superintendent of Playgrounds.

PUBLIC WELFARE - AND SERVICE -

Public Markets a Success in Columbus

COLUMBUS, OHIO.—The city of Columbus has four market houses. The stalls and stands are leased once a year to the dealers in the market at a rental fixed each year by the City Council. The rental is so reasonable that the dealer has very few overhead charges to meet; consequently he can do business on a smaller margin.

We have always adhered to the principle that for every dollar expended for the improvement and up-keep of the markets the city should get full value. We aim to keep the markets in a sanitary condition, and to give the public the best of service at the least cost possible. Economy is ever our watchword, but at the same time we see to it that the public is not inconvenienced or suffering from inattention by tenants or market officials.

Columbus is a city of approximately 250,000 people, and the markets are visited by about 125,000 people per week. Some come as often as four times a week, and the rich as well as the poor are found at the stalls, buying the necessaries of life. They come in automobiles, in street cars and on foot, all of them bent on getting choice meats, vegetables and fruits at the lowest prices. The total number of tenants and helpers in the four different market houses is about 2,000.

The present Central Market House was built in 1848. The city contemplates building a new market house on the present site, by buying additional ground with accommodations for 600 stalls and stands. This would increase the city's revenue from tenants about $40,000 per year.

The total receipts of rentals of the city-owned markets for the last seven years have been $247,341.42. After paying all operating expenses, repair of buildings, insurance, etc., the net total profit to the city in the last seven years has been $111,527.96, an average of $15,932.56 per year.

CHARLES E. REINHARD,
Superintendent of City Markets.

ONE OF FOUR PROFITABLE MUNICIPAL MARKET HOUSES, COLUMBUS, OHIO

Legal Responsibility for a Pure Water-Supply

By John Wilson
Consulting Engineer, Duluth, Minn.

EDITORIAL NOTE.—*The writer is specially qualified to discuss this subject, as he was closely associated with the litigation following the typhoid epidemic at Mankato, Minn., in 1908.*

THE history of Mankato's water-supply as secured from a few of the old settlers is interesting. Some of the early officials were of the opinion that subterranean caverns existed and these were filled with water under great pressure. Now, if the crust overlying these caverns could be punctured, the water would, of course, spout forth. In fact, it was only a matter of drilling deep enough before one such cavern would be encountered.

The first experiment was tried in 1874 and 1875 at a cost of $12,000. A well was drilled on the hilltop to a depth of 2,204 feet, the elevation being selected in order to eliminate pumping and at the same time to secure fire pressure in the mains.

So firmly was the cavern idea fixed in the minds of these settlers that they even found evidence of the existence of the caverns while drilling. In their report on the well, they said: "At 1,160 feet the drill fell a little and water rose 10 feet higher; at 1,975 feet the drill again dropped and the water rose another 10 feet."

The drilling of this well did, however, reveal the fact that artesian water could be secured by drilling at the foot of the hill instead of at the top. But here the cavern idea again came up; these caverns would in time become empty, and the city would be obliged to look elsewhere for water. For this reason it was decided to locate the pumping station on the river bank. Just how it happened that the location selected was at the outlet of the main sewer I was never able to ascertain, except that ground could possibly be secured here at small cost.

How Pollution Was Made Easy

Previous to 1908, four wells had been drilled. These wells developed a pressure of from 10 to 12 pounds per square inch at the ground surface, and the discharge flowed by gravity to the pump. The pump was located in the basement several feet below the ground surface.

The character of the water was such that the well casing did not last very long. It was much less trouble to fix up by-passes and to waste water than to repair wells. The main sewer passed within a few feet of the well and just in front of the pumping station; accordingly, a connection was made with the sewer and the suction main, so that as soon as the pump was stopped the wells would flow into the sewer.

It was later decided to discharge the ashes into the river by flushing, and another pipe was laid connecting the pumping station and river. This pipe being at a lower grade than that between the suction main and the sewer, the waste from the wells flowed direct to the river. The Minnesota River at times reaches a very high stage and has on several occasions flooded the basements in the business section of the city.

In order to safeguard against backing up the sewage, a sluice gate was placed in the sewer, and a 5-inch centrifugal pump was installed to take care of the discharge of a 36 x 54-inch brick sewer of the combined type. In order to complete conditions favorable for polluting the water, a small brick cistern was constructed around the casing of one of the wells, and an overflow was laid to the sewer just below the sluice gate.

Now, note what happened. The river reached a very high stage and began to back up the sewer. There was a heavy rain; nevertheless, the sluice gate on the sewer was closed, the ash discharge pipe plugged, and the 5-inch pump started up. There was no record of the 18-inch connection between the sewer and the pump suction, and the men in charge did not know that such a thing existed.

The surplus sewage over what the little pump could care for had but one outlet—that was back thru the suction main into the cistern, around the well, and then thru its overflow to the lower side of the sluice gate. Thus a mixture of sewage and water was discharged into the mains and passed on to the consumers.

A Serious Legal Situation

This pollution resulted in between 4,000 and 6,000 cases of diarrhea, 417 cases of typhoid and 35 deaths. The city officials realized the seriousness of the legal situation confronting them, and engaged the best legal talent available to assist the City Attorney; if the city should be held liable, the resulting claims might amount to as much as $10,000,000, while the total valuation of the city was but $4,000,000.

Fortunately for the city, the facts connected with the infection of the water were not generally known; a number of explanations had been offered, but most of them were quite wide of the mark. The uncertainties connected with the case made the majority of people very slow to start legal proceedings. There were, however, two cases started, and many citizens waited to see how these fared in the courts before taking similar action. In the meantime, the city's legal advisers adopted every possible means of delaying proceedings, hoping in this way to postpone a decision until the period of limitation had expired, for, as one of the attorneys said, "If the facts ever get before a jury we stand no show whatever."

It had long been admitted that private corporations are responsible for the character of the water furnished by them to cities; but the general theory is that a municipality is exempt or immune from liabilities unless the statutes specifically state to the contrary.

The city demurred on the ground that it was exercising a governmental function and was not engaged in a commercial enterprise, and was therefore exempt from all liability. The District Court held for the city; the case was taken to the Supreme Court, which reversed the decision of the District Court. The city then asked that the case be opened for re-argument, which petition was denied. In the meantime, the period of limitation had expired. The city, therefore, settled the two cases, thus ending the litigation without trial on their merits.

As to the general rule of immunity, the Supreme Court said:

"Defendant's argument would have had much more weight if it had referred the Court to a single case in which, under like circumstances, the rule of immunity had applied. This defendant has failed to do, and, for the perfectly good and natural reason that there is no such authority. Certainly Hughes vs. Auburn, 161 N. Y. 96 * * * to which defendant now calls our attention, is not an authority; to the contrary, this case did not involve liability in the conduct of waterworks at all. The cases concerning the inadequacy of water-supply for fire departments, it is perfectly obvious, involve essentially different circumstances from those by the case at bar." (Keever vs. City of Mankato, 113 Minnesota Reports, 55, 67.)

As to the city's exercising a governmental function in operating a waterworks, the Courts quoted from the dissenting opinion of Judge Elliott in a case where East Grand Forks sought to collect the water bills of a tenant from the owner of the property:

"When the municipality enters the field of ordinary private business, it does not exercise governmental powers. Its purpose is not to govern the inhabitants, but to make for them and itself private benefit. As far as the nature of powers exercised is concerned, it is immaterial whether the city owns the plant and sells the water, or contracts for a private corporation to supply the water. It is not in either case exercising a municipal function. * * * When a municipality engages in a private enterprise for profit, it should have the same right and be subject to the same liabilities as a private corporation or individuals." (City of East Grand Forks vs. Luck, 97 Minnesota Reports, 373, 377.)

The Court said further:

"It is obvious that a sound policy holds a city to a high degree of faithfulness in providing an adequate supply of pure water. Nor does it appear why its citizens should be deprived of the stimulating effects of the fear of liability on the energy and care of its officials; nor why a city should be exempt from liability while a private corporation under the same circumstances should be held responsible for its conduct and made to contribute to the innocent persons it may have damaged." (Mankato Case, supra, p. 62.)

In denying the application for re-argument, the Court made the following statement:

"The decision rested in effect upon this supreme consideration, namely, that public policy

requires the conservation of human life, the preservation of public health and the establishment of public sanitation on a firm and certain basis in the law." (p. 65.)

Section 8787 of the General Statutes reads as follows:

"Every owner, agent, manager, operator, or any one having charge of water-works, furnishing water for public or private use, who knowingly permits the appliances of the same to become in a filthy condition, or in such condition that the purity and healthfulness of the water supplied by reason thereof becomes impaired, shall be guilty of a felony, and punished by imprisonment in the state prison for not more than ten years."

It will thus be noticed that, while the Supreme Court in the Mankato case establishes the fact that a municipality may be held responsible for the purity of its water-supply, the state law would hold the municipal officers personally responsible.

The trouble at Mankato was purely an accident, resulting from general carelessness and intrusting administrative details to incompetent supervision. However, one must admit that the Court's decision is based on the fundamental principle of right and justice.

Applying This Principle of Justice

One can conceive of a great many cases differing slightly from the Mankato case, but where the general principle is much the same; for example, the emergency intake where polluted water may be used for the purpose of extinguishing fires. The principal difference here is that contamination of the supply is deliberately arranged for and life and health risks are assumed in order to reduce fire risk at the lowest possible cost. The same is true of the so-called dual connection at industrial plants. And it would seem that in either case not only does the municipality become subject to claims because of resulting sickness, but the officials also become personally responsible. Surely, if consideration is to be shown, a case such as that at Mankato, where there was no deliberate action or knowledge that risks were being assumed, would be given the preference over deliberate action and full knowledge that risks were being assumed for pecuniary reasons.

One thing the Supreme Court seemed to emphasize was that a municipality in extinguishing fires is exercising its police powers and cannot be held responsible for an inadequate water-supply; therefore, if an official should be confronted with the alternative of polluting the water-supply or furnishing an inadequate supply for fire purposes, he might be held legally responsible in the former case, but not in the latter.

Then, again, we have the case where the source of supply is badly polluted, but, because of a lack of appreciation of such conditions on the part of the people, the water continues to be used.

My legal friends seem to be of the opinion that a community in voting in favor of such a supply does not necessarily incur responsibility, inasmuch as in exercising its rights of franchise it is not acting as a responsible body. Nevertheless, there is a possibility that officials in carrying out the will of the people as expressed at an election become responsible, as they do constitute a responsible body.

Section 8759 of the Minnesota General Statutes, defining a public nuisance, reads in part as follows:

"A public nuisance is a crime against the order and economy of the state, and consists in unlawfully doing an act or omitting to perform a duty, which act or omission

1. Shall annoy, injure, or endanger the safety, health, comfort, or repose of any considerable number of persons;
2. Shall offend public decency;
3. * * *
4. Shall in any way render a considerable number of persons insecure in life or the use of property."

In all of the three preceding cases, when there is knowledge that pollution exists or that risks of pollution have been assumed, it seems reasonable to my mind to say that it constitutes a public nuisance, inasmuch as they all endanger the safety, health, comfort, or repose of a considerable number of persons; and it certainly does offend public decency to think that the public must assume the risk of drinking contaminated water in order that the cost of fire insurance risks may be reduced in a few cases.

The legal responsibility for a pure water-supply is a very important matter and worthy of careful consideration by men of legal training and wide professional experience.

ACKNOWLEDGMENT.—A paper read before the Minnesota Section of the American Water Works Association.

Air Lift for Deep Wells

The Development and Improvement of a Simple Method of Pumping

By John Oliphant

THE first principle to be recognized in air-lift pumping is the need of a perfect emulsion of air and water at the foot-piece in order to secure the best economy. Second to this is the need for great care in calculating and proportioning the diameters of the water and air pipes for different lifts and submergences.

The village of Maywood, a suburb of Chicago, has a compressor handling a single well, pumping at the rate of 700 gallons of water per minute, with a lift of over 300 feet. This compressor has been operating for four years, twenty-four hours per day, with a stoppage of only a few minutes during the twenty-four hours for necessary examination and adjustments. The plant has been operated at the above capacity continuously, with absolutely no cost for repairs and no shut-downs except those above indicated.

There are a great many occasions when the air lift can be used as an auxiliary to a high-duty suction plant pumping from deep wells. Such a case came up at Clinton, Ill., something over a year ago, where the water is secured by suction from deep wells in sufficient amount for ordinary purposes. But in case of peak loads in the summer and in case of fire it was found that the supply secured by suction was not sufficient to cover the requirements.

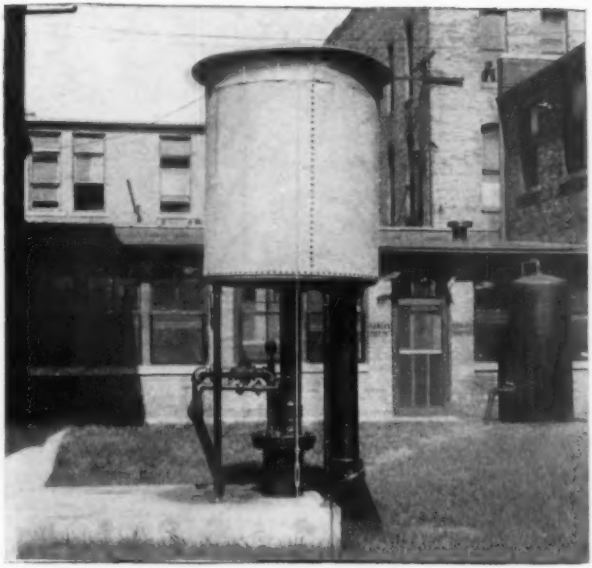
DISCHARGE FROM WELL AT CLINTON, IA.

The supply is secured from some half-dozen wells, having a surface flow of limited volume. These are connected so as to flow into a surface reservoir or may be direct-connected to mains by means of suction pumps. Experience showed that when suction was resorted to, the supply for the summer hot weather load or to meet an extended fire demand was insufficient. Three of the wells were therefore connected with an air-lift system arranged to discharge into the reservoir, using the suction piping as a gravity flow line.

A suitable arrangement of valves is provided to permit this flow from the wells to the reservoir, while the service pumps draw their supply from the reservoir by suction. By this arrangement, the water-supply was more than doubled from these three wells. One of the 8-inch wells had a natural artesian flow of about 150 gallons per minute. When under suction from the pumps, the pull-down was 20 feet, increasing the flow to 500 gallons per minute. When this well was connected up for operation under the air-lift, its production was increased to 1,035 gallons per minute, the pumping head being 50 feet below the surface. The other two wells, connected up in the same manner, showed a proportionate increase.

AIR COMPRESSOR, GALESBURG, ILL., CONNECTED TO ELECTRIC MOTOR BY SHORT BELT

These wells are handled by means of a Sullivan central type air-lift pump, suspended on a 2-inch air line in the 8-inch casing. The air for operating the wells is supplied by a straight-line simple steam and compound air compressor, size 14 x 16 x 10 x 16 inches, having a capacity of 558 cubic feet of free air per minute. The installation was effected in a simple and economical manner, by piping the air from the receiver to and into the wells. When an increase in demanded, it is necessary merely to start the compressor and throw a few valves, and the supply from the wells is more than doubled.



GALESBURG, ILL., WATER-WORKS, WELL AND COLLECTOR HEAD IN CENTER OF GROUP OF MUNICIPAL BUILDINGS

Below are some figures secured from two installations at Galesburg, Ill. The first has been in operation over a year, and the second about six months. These plants are located at different points in the town, and centrifugal pumps are used to take the water from the service reservoirs and force it directly into the mains. The efficiency indicated in these reports is the electric input to the motor as compared to foot-pounds of work done, and includes all motor, transmission and compressor losses.

The city of Galesburg had considerable difficulty in securing sufficient water for the public supply. A number of wells in the neighborhood of the old pumping plant have been driven and equipped with various devices, but failed to give the amount of water needed. The old plant consists of three deep and six shallow wells, with a combined yield of about 250 gallons per minute, and has been very expensive to operate and maintain. It was therefore determined to sink a new well.

The construction of this well was as follows: 40 feet of 24-inch heavy steel casing; 106 feet of 20-inch; 130 feet of 16-inch, and 350 feet of 12-inch steel casing. The 12-inch casing is sealed in the rock. The hole was then drilled 12 inches in diameter to a depth of 1,085 feet from the surface, then reduced to 10 inches and drilled down to 1,255 feet thru the St. Peter's sandstone formation.

The well was then shot with two 200-pound charges of 100 per cent gelatin, covering the entire sand rock stratum, and was carefully cleaned out. Genuine wrought iron 10-inch pipe was installed and sealed into the top of the 12-inch pipe, approximately 350 feet from the surface of the ground. This extends to within 3 feet of the top of the sandstone stratum, hermetically sealing the well from all water in the strata above the St. Peter's sandstone. An analysis of the water from the completed well was superior to that of all other wells in the territory, on account of the sealing off of the upper strata.

At the site of this well an air-lift plant was constructed for lifting the water from the well to a small surface reservoir. Thence the water is forced into the mains against 40 pounds pressure with a centrifugal pump.

The air-lift equipment consists of one angle-compound compressor, with 16 x 9¼ x 12-inch cylinders, arranged with short belt drive and unloading valve; one standard 5-inch foot-piece (outside air line), and well-head with umbrella separator

complete; one 42-inch x 8-foot vertical steel air receiver, and one 100-horse-power General Electric motor.

Conditions of Operation and Results of Test

The following are the conditions of operation and the results of the test on the well:

Depth of well	1,252 feet
Water pipe in well	235 feet of 5-inch 331 feet of 6-inch
Main air pipe in well	235 feet of 2-inch 331 feet of 2½-inch

On account of the severe drop, an auxiliary starting device was installed at a depth of 481 feet 8 inches to pump off the head and keep the starting pressure within the range of the compressor.

Static head (from ground)	186 feet
Drop	118 feet
Elevation above surface	7 feet
Total lift	311 feet
Operating submergence	262 feet
Percentage of submergence	45.8%
Depth of pump in well	566 feet
Operating pressure	121 pounds
Starting pressure with auxiliary	129 pounds
Gallons per minute pumped	450
Actual cubic feet of free air used	450
Revolutions of compressor	179 r.p.m.
Water horse-power (foot-pounds of work done)	35.5
Operating horse-power	94 h.p.
Efficiency per cent	37½%

High Efficiency Secured

The percentage of efficiency shown is considered excellent, and this result was made possible by careful proportioning of the sizes of air and water piping, proper location of the foot-piece or pump in the well, and by the use of the improved foot-pieces, providing a continuous flow of water. In this design the air is discharged from the foot-piece into the water, in the well casing, in a multitude of fine jets, creating a very thoro mixture or emulsion of air and water. This action secures the maximum efficiency, as the chance of slippage is reduced to the minimum.

The figures on the second plant known as Bradley Well No. 2 are as follows and are taken from a test on March 8, 1919:

Depth of well	1,245 feet
Diameter	360 feet 15 inches 250 feet 14¼ inches 635 feet 13½ inches
Water pipe in well	204 feet 8 inches 213 feet 7 inches 190 feet 6 inches
Main air line	600 feet 3 inches
Auxiliary line	500 feet 1½ inches

Conditions of Operation:

Static head from ground	190 feet
Drop	157 feet
Elevation above surface, about	7 feet
Total lift	354 feet
Operating submergence	253 feet
Percentage of submergence	41.75%
Depth of pump in well	600 feet
Operating pressure	115 pounds
Shut in pressure	110 pounds
Starting pressure with auxiliary	135 pounds
Gallons per minute pumped	650
Actual cubic feet free air used per minute	719
Displacement	883
Revolutions of compressor	214 r.p.m.
Water horse-power (foot-pounds of work done)	58.2
Operating air horse-power	148
Efficiency air compressor compared to work done	39.3%
Estimated input efficiency	35.8
Estimated motor efficiency	91%

Air-Lift Pumping and Filtration

Attention is called to the advantage of air-lift pumping in the case of wells the waters from which require treatment for the elimination of sulphates or carbonates of iron in solution or other impurities which can be oxidized and precipitated by aeration and then removed by filtration.

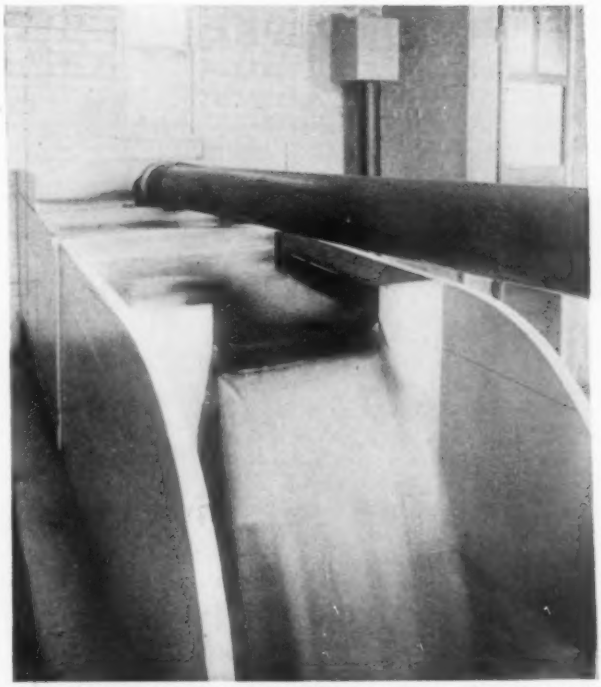
In this method of pumping, the compressed air is forced into and mingled with the water at the bottom, or at least deep in the well, by means of a multiplicity of fine streams or jets insuring the most intimate mixture of the air and water, every particle of the water being permeated with air as it rises in the eduction pipe. Oxidation and precipitation of the iron solution thus take place with the greatest possible rapidity, and it is then a simple matter to remove the iron by filtration. Waters containing carbonate of iron are especially susceptible to treatment in this manner. The pumping operation at the same time serves the purpose of freeing the dissolved iron so that it may be removed by the filter even without intermediate sedimentation.

The treatment of water containing sulphates of iron is more difficult, and the use of ample sedimentation tanks or basins ahead of the filter are advisable. In some cases aeration must be supplemented by the feeding of a very small quantity of lime into the water to accelerate sedimentation, but in any event the thoro aeration of the water in the pumping operation is a very important and vital adjunct to the purification process.

Combined air-lift pumping and purification plants can be arranged in many different ways according to local conditions.

In some cases the air lift merely delivers the water to a sedimentation tank combined with a filter located at the surface, and as close to the wall as practical, the effluent from the filter flowing by gravity to a surface reservoir or sump, whence it is forced by piston or centrifugal pumps into the service system or to a service tank or reservoir located at a suitable elevation.

Where the well or wells are deep enough to provide the necessary submergence, and other conditions are right to utilize the air lift (by means of an air-lift booster and relift jet) to lift and force the water in one operation from the wells to the elevated storage reservoir, this reservoir or tank also acts as a sedimentation tank and the water can pass from it thru a pressure filter into the service pipes.



DISCHARGE FROM WEIR BOX INTO CONCRETE STORAGE BASIN, GALESBURG, ILL.

A third arrangement is one by which the pressure filter is placed in the line between the well and the elevated reservoir and the water is lifted and forced by the air lift in one operation from the well thru the filter and up to the elevated service reservoir in one operation.

We should like to call especial attention to the two last-named arrangements, as it is the writer's observation that the possibilities of the air lift as a means of forcing the lifted water to a point beyond the well top are not generally realized, and, while this method has its limitations, there are many situations where it can be used to advantage, thus eliminating the complication of a separate pump with its incidental surface suction basin for this service.

In the boosters generally used in these installations, the discharge from the well is brought to a complete stop by striking an umbrella separator in the booster, throwing the water to the bottom of the booster and allowing the air to escape from the top

The Cyclone Separator

In order to overcome the difficulties of carrying air over into long pipes because of complete emulsion and to insure perfect separation of the air and water, a special separator has been designed, consisting of a simple shell or cylinder with top and bottom. The combined air and water is discharged into the top and at one side at a tangent to the periphery, under high velocity from the well, causing it to swirl, effecting in this way a perfect separation of the air and water, the water leaving the separator from an outlet at the bottom tangent to the periphery and the air passing off at the top. The downward centrifugal action completely separates the air from the water, leaving the air quite dry and freeing the water entirely from air bubbles.

The Planning of Water-Works for Fire Protection

An Analysis of the Relationship of the Various Items Entering Into This Important Service

By H. M. Blomquist

Principal Assistant Engineer, Bureau of Water, St. Paul, Minn.

THE functions performed by water-works may be considered as being three distinct services: (1) furnishing water for private use; (2) furnishing water for public use on streets and for sewers, public buildings, etc.; (3) furnishing water for fire protection to property.

It is the aim of this paper to discuss some features that are often abused or neglected in connection with the fire protection service, calling attention to some principles of design of water-works plants that should be observed in order to furnish a satisfactory fire protection service, and some statements in connection with the value of this service and methods used by various municipalities for paying for it.

Amount of Water Required for Fire Protection

From time to time during the last twenty-five years, standards for the amount of water required or desirable for fire protection have been suggested by different engineers. One of the first was John R. Freeman in 1892; later, Allen Hazen and others, in 1897; and the National Board of Fire Underwriters in 1910. Each of these gives formulae for determining the amount of water required for fire protection, and uses the number of inhabitants served as a basis for such calculations. The value of such formulae, however, may vary in different communities because there is no fixed relationship between the population and the amount of water necessary to successfully put out a fire in the various communities. What may be good fire protection for one community of a given number of inhabitants may not be for another of the same number of inhabitants because of the difference in construction, in industries, and in density of industrial sections.

The Fire Underwriters' requirements are as follows:

Population	Gallons per Minute Available for Fire
1,000	1,000
2,000	1,500
4,000	2,000
6,000	2,500
10,000	3,000
13,000	3,500
17,000	4,000
22,000	4,500
40,000	6,000
80,000	8,000
100,000	9,000
125,000	10,000
150,000	11,000
200,000	12,000

Over 200,000, 12,000 gallons, with 2,000 to 8,000 gallons additional for a second fire

It is also desirable that the pipe system be of such design as to provide at least one-half of this amount for any one block of buildings, and in a greatly congested value district the whole amount should be available for any one block.

The Proper Proportioning of Water-Works Systems

In order that proper results for fire protection may be obtained from the water-works system, it should be so designed that the maximum efficiency is obtained from its parts that enter into the furnishing of the water. Each of the following factors should have the proper relationship to the whole system: source of supply, pumping equipment, reservoir or storage capacity, water pressure, distributing mains, and the location of hydrants. Each of these is a link in a chain that supports the fire department in its efforts to put out a fire, and this support is no stronger than the weakest of the links. If the reservoir is of large capacity but the pipes are small, much of the cost of the reservoir is practically wasted. If the hydrants are not properly spaced, the advantage of large distributing mains is to a considerable extent lost. The spacing of hydrants and the sizes of hydrant connections are very important in attaining high efficiency of a system for fire service.

The Need for Adequate Water Pressure

The water pressure in the mains is of greatest importance if fire engines are not used, because a stream under heavy water pressure is very much more effective than one under low pressure, even tho the same amount of water may be used on the fire. Unless water is applied to burning materials in buildings at a high velocity, much of it does not reach the seat of the fire because of the difficulty of access and because of draft from burning gases. It is, then, either evaporated or decomposed into the two elements, hydrogen and oxygen, a part of which in turn combines with carbon of the burning materials and forms inflammable gases, which again burn. The water that does not reach the burning material is of little value, if any, and when transformed into gases may even be an aid to the flames rather than a means of putting them out. In order to be of most value, a fire stream must have a velocity that can be obtained only from a good pressure at the hose nozzle. As little as possible of the available pressure should be used up in hose and water system friction. It is, therefore, important that hydrants and mains should be of such sizes as to decrease as little as possible the water pressure at the hydrant nozzle by friction in the pipes, hydrants and connections during the time of heavy flow.

The amount of pressure lost by friction or resistance in fire hose is a considerable item and varies very nearly as the square of the velocity or quantity of water flowing thru. A few examples of the effect of this are shown by the following results obtained from various lengths of 2½-inch rubber-lined cotton fire hose attached to a hydrant which has a constant pressure of 60 pounds at the hydrant nozzle.

When a 1⅛-inch stream flows from a smooth-bore nozzle, with 100 feet of hose it is possible to throw a stream of 250 gallons per minute 67 feet high; with 200 feet of hose this is reduced to 222 gallons per minute thrown 59 feet high; with 400 feet of hose it is reduced to 188 gallons per minute thrown 44 feet high; with 700 feet of hose it is reduced to 158 gallons per minute thrown 33 feet high; and with 1,000 feet of hose it is reduced to 140 gallons per minute thrown only 25 feet high. It is, therefore, important that hydrants be spaced quite closely together in areas of towns and cities that are occupied by business or industries where fires are apt to be of a serious nature, in order that all available pressure may be utilized in fighting the fire. There is a large waste of power in pumping all the water against a 60-pound head and getting only about 25 pounds effective pressure at the nozzle of a long line of hose.

The friction of water in fire hose is very often neglected. Long lines of hose are laid where short ones could be used, and the water department is sometimes blamed for not maintaining a good water-supply under proper pressure when the fault lies in poor judgment in locating the proper hydrants on which to make connections, and in using much longer lines of hose than are necessary in reaching a fire. Of course, there are conditions where long lines of hose are absolutely necessary, but these conditions should be overcome as much as possible by placing additional hydrants.

The Necessary Factors for a Well-Balanced Supply

The relation between the size of storage reservoir, pumping machinery, and source of supply must necessarily vary with local conditions, and for a well-balanced system a certain inverse ratio should exist between these factors. If it is possible to have a reservoir at an elevation to give the desired pressure and with a capacity sufficient to care for the heaviest fluctuations in the amount of water used for all possible emergencies, the pumping machinery and source of supply need not be of greater capacity than to safely take care of the average supply with a fair factor of safety. If, however, it is impossible to provide large storage of water for emergency uses, the water-supply and pumping machinery must have sufficient capacity to furnish the required quantity during the time of the emergency. The possible size of the reservoir is affected generally by topography, and the desired capacity is governed by the facilities for pumping and the size of the available water supply.

The effect of the topography upon the design is often to change the reservoir from what is desirable to what is feasible. In a comparatively flat country it is impossible to store as much water as is desirable at a

high elevation, and in such cases the distributing reservoir must be reduced in size, and other portions of the system, such as the available supply and size of pumps, must be increased so as to do the work which should properly be done by the distributing reservoir.

For example, in a perfectly flat territory where an elevated tank is the only feasible form of reservoir, it will at most be only a means of making it possible to store a part of the water that will be necessary for large fires, and, therefore, the main water-supply must be provided by pumping during the time of fire. In such a case it is necessary to have a supply and pumping capacity sufficient to furnish nearly all the water that will be required for fire protection at the time of the fire. If wells are used as the supply in such cases, a storage reservoir at a low elevation, where it is convenient to build one, will serve as a suitable supply. Where the topography is such that it is feasible to build a reservoir of any desired size and at proper elevation, the capacity is dependent almost entirely upon the requirements for fire protection.

The pressure furnished by the reservoir should be such as to give the required quantity of water at the proper pressure for fighting fires; and as this depends also on the size of the pipes, the pipe sizes and the reservoir pressure have a certain relationship one with the other and must be considered together. The cost of pumping water against a high pressure must also be considered in the design of reservoir and mains. Generally it is found that from 80 to 100 pounds per square inch is the most economic available pressure at points where there is likely to be the greatest demand for water. The elevation of the reservoir necessary to obtain this pressure will depend to a large extent upon the distance from the reservoir to the center of distribution, and the size of mains used.

The Maximum Desirable Pressure

The maximum desirable pressure is a matter on which there is much disagreement. For direct hydrant streams the National Board of Fire Underwriters recommends a pressure of at least 75 pounds at the hydrant when the water flows from it at its rated capacity, except that where not more than ten buildings exceed three stories, a residual pressure of 60 pounds is permissible. In closely built residential districts a residual of 60 pounds is considered sufficient for direct hydrant stream, with 50 pounds in thinly built sections of low height. Where fire engines are used the Board recommends that the pressure on the full flow should not drop below 20 pounds, except that a minimum pressure of 10 pounds is permissible under certain conditions. In small cities it is generally economical to maintain, if possible, a pressure of from 50 to 100 pounds in the system and thereby not require the use of fire engines for good fire protection. In large cities, instead of pumping all the water against the heavy pressure it is more economical to maintain a lower pressure in the mains and to use fire engines to create the high-pressure fire streams.

As stated before, the size of the reservoir must necessarily depend upon local conditions, but should be, if possible, large enough to hold at the required elevation, in addition to the domestic supply for 24 hours, a sufficient quantity of water with which to fight any fire that is likely to occur. A fire in the built-up portion of a small city may take from one to five thousand gallons per minute, and in general the time during which this quantity will be required will not be more than from two to four hours. Applying this rule to the ordinary small city where there are no large fire risks, the capacity of the reservoir or stand-pipe should be from 120,000 to 1,500,000 gallons. During the time the water is being drawn from the reservoir it will also be possible to run the pumps, which will provide additional water, the amount of which will depend on their capacity. In all cases it is important that the water mains be of such sizes as will furnish the required amount of water at the desired locations during the time of heaviest flow, with a reasonable amount allowed for friction loss.

Automatic Sprinkler Systems

In this paper no mention has been made of water-supply for automatic sprinkler systems in buildings. Altho automatic sprinklers are very important as a means of fire protection, the amount of water required for such is not very large, and does not constitute very much of the total amount required for all purposes. Such systems are rather a means of reducing the amount of water necessary for proper fire protection

by helping to keep the fire under control until the fire department arrives, and sometimes by extinguishing it entirely.

Maintenance of System

In addition to having the proper design for a water-works plant, it is of utmost importance that the mechanical equipment, fire hydrants, gate valves and other appurtenances be maintained at a high state of efficiency so as to be reliable and always ready to perform their proper functions. There should be a thoro and systematic method of inspecting all equipment, with special emphasis on fire hydrants in freezing weather. Pumps and engines or motors should consist of at least two separate units, each of sufficient capacity to take care of all requirements, so that if one unit is out of order on account of breakdown or repairs, the other unit will be able to furnish the required amount of water.

Value of Fire Protection Furnished by the Water-Works

The fire protection service performed by the water-works, as well as its other functions, should have its just share of the operating expenditures balanced by operating receipts. In order to strike such a balance, the value of this service, or the cost of furnishing it, must in some way be determined. Many standards for determining the value or cost of furnishing fire protection have been used by various municipalities, and in many instances it has been neglected altogether. In order to arrive at an equitable basis for determining such value, it is necessary to consider the difference in the design and operation of a system necessitated for the purpose of furnishing fire protection.

In a large city the requirements for fire protection do not play as large a part relatively in the design of a system as they do in a small city, except in certain details such as fire hydrants, the size of mains, and to some extent the capacity of the pumping equipment, because in a large city the requirements for private and public use are usually very large, and constitute the greater portion of the total capacity that must be provided. In smaller cities, except the source of supply, as far as construction is concerned, the fire protection requirements determine nearly all the important features and include the pressure to be maintained, the size of the storage reservoir, the size of mains, and the pumping plant. These portions of the plant could be made much smaller and much less expensive were it not for the fire protection requirements.

What Portion of Plant is For Fire Protection?

The portion of the entire physical property of a water-works plant involved in fire protection has been estimated by competent authorities to be as great as 80 per cent. The National Board of Fire Underwriters estimates that the per cent of cost of a distributing pipe system chargeable to fire protection service for various size cities is as follows: one having 10,000 population, 56 per cent; 50,000 population, 29 per cent; 100,000 population, 17½ per cent; 300,000 population, 4 per cent. Of the entire cost of the plant chargeable to fire protection service the estimate is as follows: 10,000 population, 60 per cent; 50,000 population, 32 per cent; 100,000 population, 23 per cent; 300,000 population, 13 per cent. Other authorities have given higher proportions as the cost of this service, especially for larger cities. The investigation of the cost of furnishing fire protection to a section of Greater New York for a population of about 400,000 people, using an average daily supply of 38,000,000 gallons of water served by a private water company, showed that only 3 per cent of the total investment and 15 per cent of the operating expenses were attributable to fire protection, but with allowance for depreciation and interest on investment, the cost of fire protection was found to be approximately 21 per cent of the total cost of furnishing water by this company.

Messrs. Metcalfe, Kuichling and Hawley, in their paper on "Reasonable Return for Fire Hydrant Service" (American Water Works Proceedings, 1911, page 66), make this statement: "The cost of the portion of the water-works plant involved by fire protection service probably constitutes from 60 to 80 per cent of the entire cost of the property in the case of communities having less than 5,000 population, 20 to 30 per cent in communities of 100,000 population more or less, and perhaps 10 to 20 per cent in case of our large cities." It is certain

that the cost of furnishing fire protection constitutes such a large part of the total cost of the plant and the value of the water-works share in furnishing this protection is of sufficient importance to warrant special attention by municipalities.

For fire protection the amount of water consumed is very small; therefore the value or cost of the service cannot be measured by the amount of water consumed, but must be derived from the cost of the additional construction and equipment required, and the maintenance of such additions. That part of the water-works plant chargeable to fire protection consists of the additional pumping capacity, increased size of water-mains, larger storage facilities, and the cost of hydrants. The approximate cost, therefore, of fire protection consists of the following items: the interest on the additional investment necessary in the water-works plant by reason of the increased amount of construction required, as stated above, and the maintenance of this portion of the plant; also a certain amount of the attendant and inspection charges necessary in order to have the plant ready for operation at all times, day or night, which otherwise would not be necessary, especially if sufficient storage is provided for the ordinary consumption.

The conception of the value of fire protection service may also be obtained by comparisons of fire insurance premium rates under efficient fire protection and under no fire protection. This protection is made up of a fire department, together with the water-supply provided for this purpose, and the water-works share of it consists of providing the agencies necessary for furnishing an additional amount of water under proper pressure over and above that necessary for the ordinary consumption; the value of the water-works part in it bears the same proportion to that of the fire department as the cost incurred by the water department in furnishing this service bears to that of maintaining the fire department. The difference in the insurance rates, however, is not the only value of good fire protection. There are other factors, such as the effect of economic waste resulting from loss of business, income and wages in the reconstruction following the fire, and the loss of property that cannot be replaced.

Method of Payment for Fire Service

There are various methods used by municipalities in paying the water company or the city water department for its share of this service. A common method is to pay a monthly or annual hydrant rental of a fixed amount for each hydrant installed. While this method cannot be considered sound from either a business or a technical standpoint, it is perhaps the simplest way of paying something for the service. There are valid objections to this method, one of these being that the number of hydrants used multiplied by a stipulated amount does not represent the cost nor the value of the service, but perhaps the greatest objection to it is that, where the water-works are privately owned, it will tend to prevent the installation of the proper number of fire hydrants that are required for good fire protection in order to save on the annual hydrant rentals. It is believed that a more desirable method of paying would be an annual lump sum based upon the cost of the service to the water company, or city water department, and upon condition that the city should control the location and number of hydrants to be maintained. This lump sum should be revised from time to time in order that it may be equitable and provide for additional service as the system is enlarged. There should be no objection, however, to dividing this amount by the number of hydrants in use and calling it hydrant rental, provided the number of hydrants is not reduced below the requirements for good service.

Acknowledgment.—From a paper read before the Minnesota Section of the American Water Works Association.

The most pressing of all civic problems is that of municipal home rule.

—Tom L. Johnson.

Is Your City in the Vanguard Fighting Water-Borne Typhoid?

1890 TYPHOID DEATH RATE 80 TO 100 PER 100,000.
TYPHOID
1906 TYPHOID DEATH RATE REDUCED TO 32.1 PER. 100,000.
FILTRATION PLANT
HOLD HIM DOWN! I'M COMING
TIME!
FILTRATION PLANT
1918 TYPHOID DEATH RATE REDUCED TO 7 PER 100,000
LIQUID
ZIM '19

Cartoon drawn specially for THE AMERICAN CITY *by Zim*

The Gunpowder of Race Antagonism

By Mary White Ovington

Chairman, National Association for the Advancement of Colored People

THE United States has recently passed thru two terrible race riots, that at Washington and that at Chicago. These cities have suffered in loss of life and of property. They have also suffered in good name; the state of Illinois, bearing the unenviable distinction of having permitted three race riots—at Springfield, east St. Louis and Chicago—within ten years. During these weeks of rioting, inhabitants of American cities having a large Negro population have been tense, apprehensive lest some inadvertent act might lead to mob violence. But a town should not blow up from the igniting of a single grain of gunpowder. Unless a train is laid to some powder magazine, the result is only a slight flareup. How then, we need to ask ourselves, was the train laid in these two cities and are we laying any lines of gunpowder in our own communities?

Four Outstanding Causes

There were four outstanding causes for the recent riots: in Washington, the playing up of Negro assaults upon women in the daily press; in Chicago, the conflict between organized and unorganized labor, corrupt politics and the housing situation.

To take the last cause first: The exodus of Negroes from the South has been conservatively estimated at half a million. Of this number many have migrated to northern cities, where they have been sought by employers in great industries. Chicago has in the past two years gained about fifty thousand such colored workers. These men have come expecting to make a permanent home in the city, often bringing their families with them. They have found work, but no provision has been made to secure them proper housing. Comparatively few buildings have been erected during these two years, and the city, already full, has been overcrowded by its newcomers.

The old State street neighborhood, the black Bowery of Chicago, has taken in lodgers beyond a decent limit, and the colored people have spread west and south. The better class, especially, have moved south, securing a precarious foothold in many attractive streets. That the foothold has been precarious has been shown by the bombing of eight houses. One house has been bombed twice, the Negro occupants courageously remaining even after the second attack upon their home.

The political government of Chicago offers a second reason for the breaking out of mob violence. The Negroes helped elect the present mayor, who, in return, is believed to have catered to their worst element, leaving their part of the town wide open, and winking at violations of the law committed by their political leaders and their friends. Next to the colored ward is the Irish, also wide open, and for years Negroes, going to their work, have made a broad circuit, rather than risk walking thru the enemy country. With such a condition in normal times it is easy to see what depredations might be made when mob law is in the ascendent.

The third reason for the riots was the labor situation, the antagonism of the white laborer for the newcomer who accepted a lower wage than he. Unquestionably Negro labor is at times a menace to the white workingman with a high standard of living, just as Polish and South European labor has been before him. That the Negro has been organized since he came to Chicago is shown by the fact that in the stock yards, where 15,000 are employed, fifty per cent are in the unions. Still this is far below the ninety-five percentage for the whites. Labor antagonism was probably the dominant note in the Chicago riots, as it unquestionably was in those at East St. Louis in 1917.

Of the fourth cause, the playing up of Negro crime, we have no evidence in Chicago but ample proof in Washington. For weeks before the outbreak the papers in that city featured Negro attacks upon white women. That there was any more crime of this sort than normally occurs in a large city we have no reason to believe. From June 25 to July 18, according to the records of the police department, there were four attacks in the District of Columbia, and the

probable culprit in three of these cases was jailed pending trial some days before the rioting. The papers, however, by inflammatory headlines, gave the public the impression that crime was in the ascendent and that no woman was safe from Negro assault. In the same way the riots in Atlanta were worked up by the press.

This was the train of gunpowder, and few of us looking at our own cities can fail to see that we are dropping some inflammable material along the same lines.

Take the housing situation: The Negro who lives in poverty usually gets the worst deal the city has to give. If he leaves the alley and the slum, as he has in New York, it is thru a series of fortuitous happenings plus the farsightedness of his own real estate dealers and his indomitable grit. It is not pleasant for colored people to break into a new neighborhood; if they are not bombed, they are often insulted and are subjected to much petty attack. They are also subject to the sharpest of sharp dealing on the part of real estate interests, and on entering a new home are always charged more than the former white tenants. This practice makes them skeptical regarding the loss in real estate values of which they so frequently hear. They themselves suffer chiefly from the utter disregard of the owner of Negro property to the character of his tenants. While in a white neighborhood the landlord often shows a desire to keep up the standard of respectability of his block and turns down the criminal, in a Negro neighborhood whoever pays the highest rent gets in. Thus we have bootlegger and street walker living in an apartment with law-abiding, self-respecting Negro families. New York's colored neighborhood in Harlem, of 150,000 residents, contains within its few blocks the best but also the most criminally inclined Negroes in the world. Under these circumstances, colored parents are continually endeavoring to get into a new place where viciousness is not permitted to show itself. They invade white blocks. In all our large cities, north and south, there are many colored homes scattered among the whites where the two races live in peace and usually in amity. But where the population is large, the better Negro element, as it surges forward entering a new area in considerable numbers, causes race friction and sometimes almost a panic.

Probably little can be done to stabilize real estate values when a neighborhood once loses its exclusive character. Good old residential sections in every great city have gone their way. Many an old mansion has seen in its turn the Irish, the German, the Italian, the Russian Jew, the Negro. So long as America spells opportunity, we shall see these invasions, the old families moving to newer and more attractive districts, the old homes occupied by foreigners or by colored families. To prevent this, some southern cities tried segregation by municipal ordinance, until the Supreme Court of the United States declared such an ordinance

CHICAGO POLICEMAN ASSISTING COLORED FAMILY TO A SAFETY ZONE

unconstitutional. Even now we have the same thing attempted despite the decision of the courts. Recently in Oklahoma City the Negroes have been clamoring for a hospital, and were on the point of obtaining one when the city officials voted the appropriation down, on the ground that Negroes had attacked a municipal segregation ordinance and that until they accepted segregation nothing would be done for them. The Negroes, on the other hand, replied that they would not permanently remain in their present unhealthy quarter by the creeks and mudholes, but that they intended to live in a healthier part of the city. The matter has not yet come to a decision, both sides holding out, but it shows that segregation ordinances are for the benefit of those who pass them, and that Americans, black or white, mean to recognize no limit to the possibility of bettering their housing conditions save that of their pocketbooks.

An interesting experiment has been made in Cincinnati that should be worth following in other cities. A small community settlement, occupying seven acres, was opened up for Negroes in 1914 by Mr. J. G. Schmidlapp. It is in a beautiful wooded section of the city, and is built along the best lines of modern apartment-house construction. On a modest scale it resembles the Forest Hills experiment of the Russell Sage Foundation. Small Negro sections such as this, healthfully situated, would relieve the tension. The colored man usually gets second best, with an anathema from his new white neighbors. That the situation is a complicated one is only too apparent, and its very difficulty shows that it should no longer be left wholly to the dealer in real estate.

The second cause of the riots, political corruption, a mayor elected by the black vote, the consequent catering to the worst type of politicians, is not peculiar to any one city. The Negro has had long training in party politics and stands in with the spoilsman. The reason is obvious—only thru the municipal, state or federal government has he been able to get an attractive job. But, with his improved economic position he is less dependent upon patronage and is ready to take his place in the city's life. Men engaged in civic betterment could get much help from the younger generation of colored men. The colored soldier is today making his decision in party politics. Those desirous of securing the best for their city can use his enthusiasm, his spirit of service; or, as has heretofore been the case, can ignore him and send him into the camp of the ward heeler, who welcomes him with a glad hand.

With the last two causes, the conflict between organized and unorganized labor and the inflammatory headlines of a hostile press, the Negroes alone will have to deal. In Chicago at the present moment they are "between the devil and the deep sea" when they attempt to grapple with the labor problem. If they remain unorganized, their lives are in jeopardy, and yet they know from bitter experience that white men have gotten them into the union only to so manage later, at a slack time, that they are the first to be relieved of their jobs. As non-union men they stand well with their employers and receive a certain amount of protection from them. The recent action of the American Federation of Labor at Atlantic City, recommending the organization of all Negroes, in white unions when possible, or if this be not possible, in colored unions affiliated with the American Federation of Labor, gives the Negro a better labor standing. His most thoughtful leaders are advising him to enter labor's ranks. Certainly, from the viewpoint of the riot, no drop of gunpowder is more easily ignited than that labeled "scab."

"Black Brute Assaults White Woman!" "Frightful Murder Committed by Negro!" These and similar headlines have led the American people to believe that the Negro to an unusual extent is given to crimes of violence. Recent statistics, however, show that the white woman is in less danger of assault from the black than from the white man. But so long as the black man's crimes are always labeled, while those of the rest of the population are simply crimes unassociated with any ethnic group, society will continue to have the impression that the Negro is unusually dangerous. A study of newspaper headlines during the two recent riots reveals a constant tendency to feature the black who remains on his own street as the aggressor, and the white who rushes from his own quarter into the black belt as the oppressed. This featuring of news is not likely to change until the Negroes constitute a powerful group in the community. For the present they will be

played up as criminals or buffoons as many another group has been played up before them. Fortunately they have friends on the editorial staffs of both southern and northern papers who somewhat temper the boldface headlines of the first pages.

Summer is the time for deeds of violence; but, before another summer comes around our cities should have taken steps to make impossible such disgraceful and bloody riots as have taken place this year. They can only do this by a careful study of the conditions existing between the two races, a study undertaken in a kindly temper with the heartiest coöperation of black and white. Our greatest sin is not violence, but indifference. Only when there is indifference to the welfare of a group mass in the community can such race riots as those of Washington and Chicago occur.

A Suggestion for Fire Prevention Day

THE interest of public officials, in connection with Fire Prevention Day, October 9, will be greatly increased by the plans of the Society for Fire Resistive Frame Construction of Chicago.

Fire departments that wish to conduct a demonstration of the rapid combustibility of frame houses as ordinarily built will be aided by the Society in designing a test house. No more constructive work could be done by a municipality than to demonstrate to the public what "bonfires" most houses may be. When the rapid spread of fire is understood, the salutary effect will be noticed not only in the improvement of new construction but also in the care of avoiding the present fire hazards of rubbish, oil-soaked clothes, matches, etc. Fire prevention engineers are advocating building construction in which every part is entirely incombustible and in which protection around all members which deteriorate rapidly under the action of fire is provided by insulating materials.

Wood construction is entirely eliminated from this ideal, but we cannot attain this ideal at the present time, especially in home construction. Wood is too important and too economical a structural material to be eliminated from present-day construction. Realizing this, it is more feasible to advocate a method of using wood for joists and studs and of protecting this by a high fire-resistive coating. We should eliminate as far as possible the use of any pieces of wood smaller than 8 square inches cross-section, as fire does not develop rapidly in wood of this size, and anything smaller is merely "kindling wood."

Specifically, this eliminates wood lath and wood shingles, both of these materials being most hazardous because their small size permits them to be quickly ignited and because they are both normally used in very hazardous positions. Wood lath, even when coated with plaster, has a fire-resistive value of about 5 to 7 minutes; and when a fire enters a partition with wood lath in it, the wood lath supports the combustion and adds quickly ignited kindling wood to the flames. Wood shingles are in an even more hazardous position because they are entirely exposed to any firebrand that may fall from fires in adjacent buildings.

A test house has been designed to demonstrate the rapid combustibility of wood lath and shingles and at the same time show the fire-resistive value of identically the same wood frame construction with metal lath and fire-resistive shingles. A fire can be started in the kindling wood half of this house and quickly consume it to the ground, while the other half will resist the fire in an amazing manner. A test house constructed like this, with the plaster left to dry 15 or, better, 30 days, is a splendid demonstration for any civic body to make.

This test can be conducted at any time, but Fire Prevention Day, October 9, is the psychological day, because of the fact that attention is being drawn to fire prevention at this time by fire prevention societies, fire departments, the national government and the public schools thruout the country. The conduct of this test should be made a civic matter. Such organizations as the Fire Department, the City Building Department, associations of local fire insurance men, the Mayor of the city, School Board, Real Estate Board, Chamber of Commerce and other civic organizations should coöperate to increase its importance. A vivid realization of the combustibility of the modern home will be brought to the consciousness of hundreds and possibily thousands thru such spectacular demonstration.

Coöperation is needed from every side to eliminate the most inflammable materials from the modern American home. Plans and specifications for the typical test house may be obtained without cost from the Society for Fire Resistive Frame Construction, Room 742, 72 West Adams Street, Chicago, Ill.

Minnesota Proposes a Memorial Hall

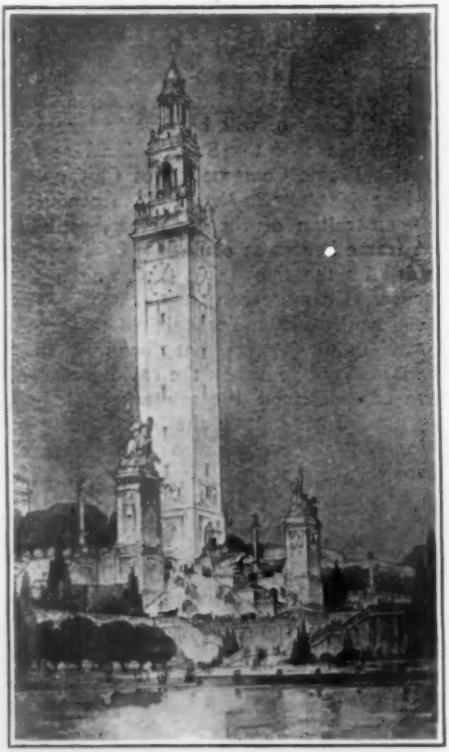
By O. B. McClintock
Minnesota State Memorial Commission

IN a report recently presented to Governor Burnquist, the Minnesota State Memorial Commission suggests the creation of a beautiful mall upon the campus of the State University, with a magnificent memorial auditorium on the northern end capable of seating six to eight thousand, and with several additional rooms suitable for meetings of veterans. The auditorium which the Commission recommends would also have proper space for relics and documents of the various wars. The names of the men and women of Minnesota who have served would also appear on bronze tablets in the rotunda of the auditorium. At the southern end of the mall, on the banks of the Mississippi, it is proposed to erect a stately campanile, 225 feet in height, in the tower of which would be chimes and on the walls of which would appear the names of all the Minnesota men and women who have died in the service of their country.

In arriving at this recommendation, the Commission was influenced by a large number of letters, telegrams and petitions from all parts of the state, urging that the proposed memorial should take the form of a building with accessories. The proposed memorial commemorates the valor and deeds of those who served in the civil war and the Spanish war, as well as of those who took part in the recent struggle.

The accompanying sketches show the general features of the proposed mall, with the auditorium and the campanile as the dominant features.

BIRDSEYE VIEW OF THE PROPOSED MEMORIAL AT THE UNIVERSITY OF MINNESOTA



THE CAMPANILE, THE DOMINANT FEATURE OF THE PROPOSED MEMORIAL HALL

Experimental Zone Fare for New Jersey Street Railways

By Delos F. Wilcox

THE Public Service Railway Company of New Jersey operates one of the largest street railway systems in the country. It consists of nearly 800 miles of single track, serving over two million people, distributed among 141 municipalities, ranging all the way from a few hundred in population to great cities like Newark and Jersey City. The system gridirons the state of New Jersey. It includes not only the great residential district in the northern part of the state which lies within commuting distance from New York, but also includes the Camden district, which is in a similar position with respect to Philadelphia. The Public Service Railway Company has no fewer than 119 corporations represented in its family tree. Their consolidation into a single system was effected over a period of many years thru leases, mergers, consolidations and the acquisition of stock control. Furthermore, the Public Service Railway Company itself is one of three big sisters that dwell under the paternal roof of the Public Service Corporation of New Jersey, a holding company with headquarters in the new Public Service Terminal Building at Newark.

Six Operating Divisions

The Public Service Railway system is divided into six operating divisions. The Essex Division includes the city of Newark and the surrounding cities and towns in Essex County. The Hudson Division includes Jersey City, Hoboken, Bayonne and other cities and towns in Hudson County. The Passaic Division includes the cities of Paterson, Passaic and other municipalities in Passaic County. The Bergen Division includes Hackensack and a large number of small communities in Bergen County. The Central Division includes Elizabeth, Perth Amboy, New Brunswick, Plainfield, Rahway and other communities in the central part of the state, extending from the boundaries of Newark as far as Bound Brook. The Southern Division includes Camden and the surrounding communities. The Public Service Railway Company does not control the local street railway system of Trenton, but, thru the Public Service Railroad Company, an affiliated concern operating under steam road charters, it has a Fast Line on private right of way running from Newark to Trenton and there connecting with the Riverside Line of the Southern Division, which extends from Trenton to Camden. Prior to 1918 the fares charged by the Public Service Railway Company and the transfers issued were controlled in large measure by municipal ordinances enacted by upwards of 90 municipalities, restricting the fare to five cents and stipulating that free transfers should be issued on all or a part of the lines in each municipality. In practice the company had extended the five-cent fare and free transfer privileges considerably beyond the ordinance requirements. Of course, the company did not give a universal five-cent fare and free transfers over its entire system, but with very few limitations, the Essex Division and the Hudson Division, for example, each constituted a single five-cent zone.

Emergency Relief Granted in 1918

Last year, however, in proceedings directly affecting certain other utility companies, the New Jersey courts held that the Board of Public Utility Commissioners was clothed with authority to increase the rates notwithstanding the limitations which may have been incorporated in the municipal franchise ordinances. This gave the state commission jurisdiction to establish a new schedule of rates for the Public Service Railway Company. The Public Service Gas Company and the Public Service Electric Company applied to the Commission for emergency relief in February, 1918, and were permitted, after very brief hearings, to add certain war surcharges to their established rates. After these matters were out of the way, the Public Service Railway Company came forward with an application for permission to charge seven cents in place of five, two cents for each initial

transfer and one cent for each transfer on a transfer. It took the position that an emergency existed which required the Commission to grant immediate relief without waiting to go thru the slow processes of a regular rate case based upon a valuation of the property. The application was opposed by the New Jersey State League of Municipalities, and after the hearings were closed the Commission in July denied the company's application for permission to depart from the five-cent fare, but authorized the installation of a charge of one cent for each initial transfer beginning with August 1, 1918. Almost immediately thereafter the National War Labor Board announced its decision in a wage dispute which had been submitted to it as a result of a brief strike in the preceding June. The award carried an increase in wages which, according to the company's estimates, would result in an increase of $1,630,000 in its annual payroll. The company, therefore, immediately filed with the Commission a new application for permission to instal the seven-cent fare; and, after hearings in which the municipalities offered no expert testimony, the Commission in September issued a new order authorizing the company to charge seven cents for the period beginning October 15, 1918, and ending March 31, 1919. On April 1, 1919, the fare was to be reduced to six cents; the charge of one cent for a transfer was to be continued.

Elaborate Rigid Mile Zone Plan Proposed

In the meantime, as a part of its first order, the Commission directed the company to make a study of zoning and to prepare and submit a plan for a readjustment of fares on a basis that would be more in accordance with the relative cost and value of the service rendered to the different classes of riders. In March, 1919, the company presented an elaborate zone report proposing a pretty rigid system of mile zones all over its lines, with an initial rate of five cents for the first zone and one cent per zone-mile thereafter. A charge of one cent was to be made for each transfer, which would be merely a "ticket of admission" to the second car, as the transfer passenger would then have to pay one cent per zone for whatever distance he might ride on the second car, the same as if he had continued on the first car without transfer.

At the time of filing this plan the company asked the Commission to modify its second order so as to permit the continuation of the seven-cent fare pending the Commission's decision on the zoning plan. This application for a modification of the second order was at first denied and the fare was reduced to six cents on April 1, 1919. After further hearings, however, the Commission modified its September order and the seven-cent fare was restored early in May. Meanwhile the company put in evidence an appraisal of its property which had been made by Dean Cooley of the University of Michigan as of December 31, 1915, without the coöperation or supervision of the Commission or the municipalities. This year the application was opposed by Newark, Jersey City and a number of other municipalities, and evidence was produced to show both that the company's plan was unsatisfactory and that the valuation claimed by the company was excessive.

Strike Referred to National War Labor Board

In March, 1919, just at the time when the company's zone report and plan were filed, the employes went on strike. Subsequently the questions of dispute between them and the company were referred to the National War Labor Board. A decision was rendered June 25, 1919, under which the company estimated that its annual payroll would be further increased to the extent of $1,175,000. It thus appeared, from the company's point of view, that even before the original zoning scheme had been approved by the Commission, it would have to be modified so as to produce more revenue than was deemed sufficient at the time the report was filed. During the hearings evidence was produced by the municipalities stressing the point that something must be done to conserve to the railroad company the short-haul traffic which, under the seven-cent fare, was being absorbed by the jitneys. The witnesses for the municipalities maintained that the company's zone plan, with five cents as the minimum fare for a mile ride, plus the transfer charges, would not recover for the company much, if any, of the traffic that had been lost to the jitneys and would not develop new business

by encouraging the riding habit. On behalf of the municipalities, Mr. Walter Jackson, who for seventeen years had been connected with the Electric Railway Journal, testified as to the remarkable results obtained in British cities by the policy of frequent service and low fares for short riders; and Dr. Robert H. Whitten, city planning expert of Cleveland, testified along similar lines, pointing out especially the disadvantages of the company's plan from the point of view of the distribution of population and the decentralization of industrial plants.

Three Cents For Initial Ride

As a result of these various facts and conditions, the company on July 29 offered to put into effect temporarily a new plan based upon a three-cent initial fare for the first zone mile traveled, with two cents a mile thereafter, without any transfer privileges whatever. The municipalities had not completed their testimony with respect to the valuation of the property. Without admitting that the proposed new rates were just and reasonable, the municipalities consented to interrupt the presentation of their case long enough to permit the company to put in its new plan before the Commission, with the understanding that if the Commission approved the proposed rate, it would be put into effect as a temporary and experimental rate pending the conclusion of the case and the Commission's final determination as to the valuation of the property and the amount of money to which the company was entitled as a return on its investment. Under these conditions, the Commission issued an order authorizing the company to instal the new plan with certain modifications on September 14, 1919. Beginning on that date, therefore, the principal street railway system of New Jersey will be operated on the basis of mile zones with an initial charge of three cents, good for the first zone, and a charge of two cents per zone thereafter. No transfers will be given. A passenger who transfers from one car to another will have to pay on the second car just the same as if he were beginning his ride.

The municipalities submitted a plan calling for a three-cent fare for the first zone and one cent per mile thereafter up to a total distance of five or six miles, with an increase to one and one-half cents per mile for the long suburban and interurban rides. If the valuation fixed by the Commission, after all the evidence is in, is not too high, the temporary rate in effect September 14 may be reduced so as to correspond more closely with the municipalities' plan. Obviously, the temporary rate, while advantageous from the point of view of the short-haul rider, will work considerable hardship upon city riders whose regular routes are from three to five or six miles in length. For still longer distances the rate may prove to be nearly prohibitive. The rate will also work hardship in the case of those who are compelled to change cars in the middle of a zone without the benefit of a transfer.

Significance of the Experiment

In spite of these limitations, the new plan initiates a movement that is quite the opposite of recent fare movements in this country. It is based upon the theory that in order to live the street railways must increase rather than decrease the amount of service rendered by developing the riding habit and cultivating short-haul traffic. The experiment is one of great importance to the electric railway industry and to the country at large. No community would object to a company's securing the additional revenues necessary to meet the increased cost of service if such additional revenues can be secured by a better utilization of the transportation facilities now available. Larger revenues derived from a larger number of people who are willing to buy transportation in small packages will not give offense to anybody.

"REFRIGERATION IN ITS RELATION TO THE MUNICIPAL POWER PLANT"

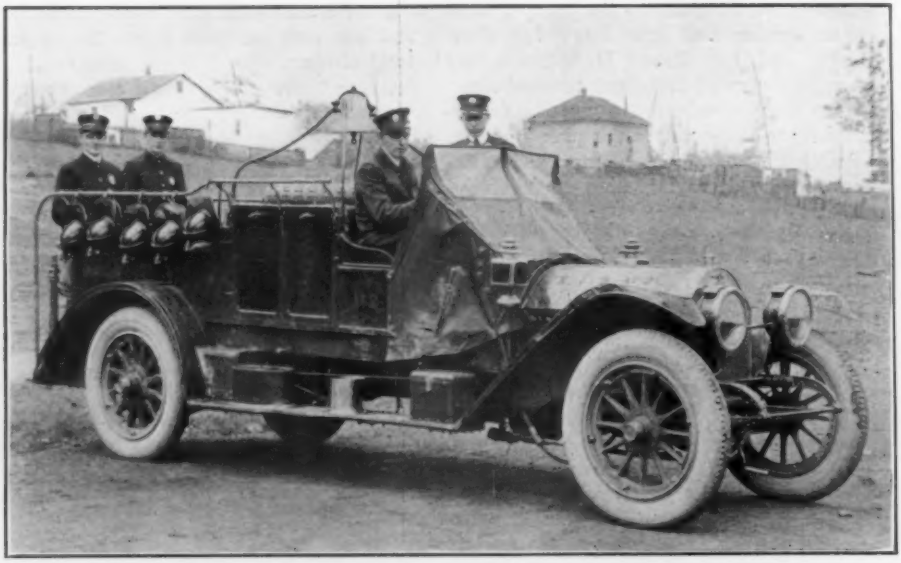
In the article, "Refrigeration in Its Relation to the Municipal Power Plant," by Prof. J. V. Martenis, which appeared on page 149 of the August issue, we wish to correct the following errors which have been called to our attention:

On page 149, second column, 13th line, the word "impossible" should read "possible."

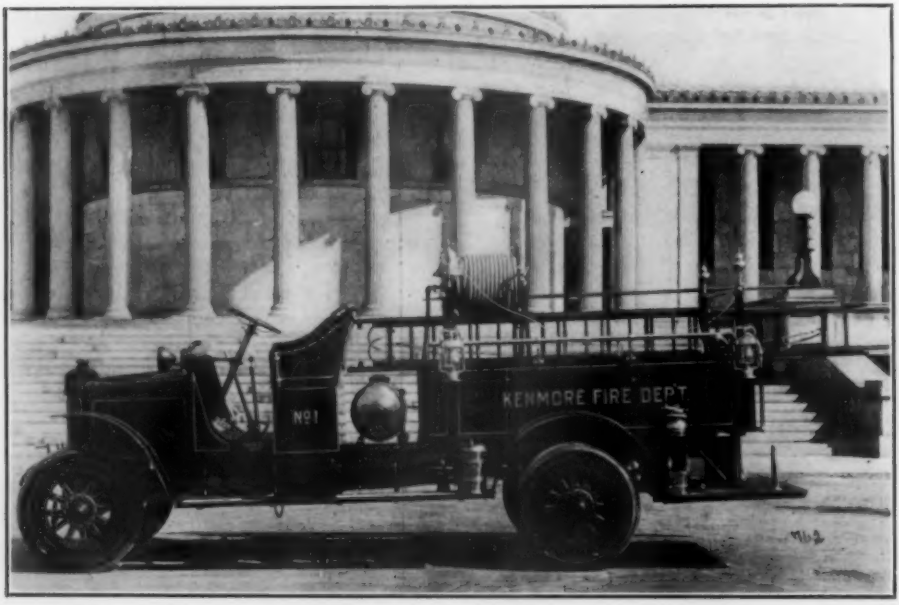
On page 150, first column, 35th line, the word "absorption" should appear after "ammonia."

On page 150, 46th line, the sizes should read 10 x 12 feet x 30 inches.

Motorizing Municipal Departments Has Increased Their Efficiency



THE WALLINGTON, N. J., FIRE DEPARTMENT LOCOMOBILE TRUCK EQUIPPED WITH BRAENDER TIRES



A "NORTHERN" EQUIPPED FIRE TRUCK USED BY THE VILLAGE OF KENMORE, N. Y., WITH FIRESTONE TIRES

SERVICE MOTOR TRUCK ON HEAVY HAULING JOB IN ROAD WORK

ELGIN MOTOR GUTTER SWEEPER REMOVING THE LEAVES AND DIRT FROM THE GUTTER OF A BRICK PAVED STREET

In the photo above the gutter sweeper is being followed by an Elgin pick-up sweeper. The combination cleans one-half of the street thoroly in one trip, and finishes the job on the return.

What Type of Tire?

An Analysis of Tire Equipment for Motor Fire Apparatus

By I. E. Davies

WHICH type of tire is best suited for fire apparatus—solid, pneumatic, or cushion—is a question that is being considered by municipal and fire department officials as well as manufacturers of fire apparatus and tires.

To discuss the question properly and intelligently, certain basic facts and conditions must be clearly understood; first, what types of tires are available; second, the apparatus to be fitted; third, the road conditions; fourth, the operating conditions, speed, length and number of runs; fifth, ultimate cost of operation.

Types of Tires Available

There are but three distinct types of tires manufactured: pneumatic, cushion, and solid, or "hard," tires. All tires now on the market belong to one or another of these three types. Each type has a particular field to which it is best suited and in which it will give the most satisfactory and efficient service.

For the purpose of clearly understanding the proposition, let us divide pneumatic tires into two separate and distinct classes—passenger car, and commercial car, or truck, types. These classes may then be divided into two other divisions each, namely, fabric and cord construction.

The passenger car type of tire was developed to meet a condition brought about by the introduction and development of the higher speed motor vehicle. To accomplish the desired results and after many experiments, the side walls of the casing were built as light as possible, consistent with safety and good service, to eliminate the effects of friction and heat generated by the rapid and frequent flexing or bending of the tire when running, especially in touring and long continuous runs or over rough, uneven roads at reasonably high rates of speed.

For comparison: A piece of No. 10 wire cannot be bent as rapidly, frequently, and easily as a similar length of No. 21 wire, which is but half the diameter; because of its greater diameter it exerts greater resistance to the flexing, generates more heat, and breaks sooner as a result.

Commercial, or truck, pneumatic tires were designed for heavy duty at a more moderate average speed and shorter continuous runs than the passenger type. They therefore have heavier side walls and thicker threads, which resist the strain of the load and are not affected by heat generated by friction and flexing, because the flexing is not so rapid as to prevent the proper radiation of such heat as may be generated and the rate of speed at which they run is lower.

Cushion tires occupy a middle ground between the pneumatic and solid types. Their development was in response to a demand for a tire free from the usual pneumatic tire troubles, namely, punctures and blow-outs. The resiliency of the pneumatic type has never been questioned, and it was a strong requirement in the demand for the new type. Solid tires eliminated the troubles of punctures and blow-outs, but did not have the cushioning quality necessary to absorb the road shocks and to eliminate vibration. Therefore the cushion tire is a type neither as resilient and speedy as the pneumatic tire nor as durable as the solid, but it has to some extent reduced the troubles experienced with both types.

Solid, or hard, tires are the heavy-duty type. Their best services are realized when run at moderate speeds.

To obtain the best service from tires of any type they must be of sufficient size to carry the maximum load, must not be overloaded, and must be given reasonable care.

The Apparatus to Be Fitted

In the fire service eight distinct types of apparatus are used, not all necessarily in any one city or department. They are the chief's car (a passenger car), the straight chemical, the combination chemical and hose truck, the combination chemical hose and pumper, the heavy pumper, the service car or truck, the tractor, and the aerial truck.

Each of these cars is designed for a spe-

cial service. Each was built to meet certain conditions and demands. No one type of tire can successfully meet all conditions created by the numerous types of vehicles and service to which they are applied.

The Road Conditions

Road conditions are as important in the selection of the type of car as in the choice of tires. Road conditions vary in every hamlet, village, town or city, in accordance with both local and geographic conditions. Tire traction is lessened or increased by road conditions. One tire may give excellent traction on hard surface roads but fail utterly in sand or heavy clay roads in wet seasons. This is one of the most important factors to consider in choosing both truck and tires.

Operating Conditions

Operating conditions cover speed required, length and frequency of runs. These conditions sometimes neutralize and sometimes exaggerate other phases. If one type of tire or car would give maximum service in a restricted district where low speed and short runs at frequent intervals predominate, it might not give equally satisfactory service where large areas have to be covered under similar road conditions, because of the need of greater speed for a longer period.

Ultimate Cost of Operation

Initial cost should not be the deciding factor in the purchase of either tires or car. Ultimate cost is a much better basis to use in making a decision. A low initial cost tire frequently proves to be the most expensive in the end, on account of its being contributory to other items of expense, such as mechanical repairs, which would be eliminated by the correct type even at a higher initial cost. On the other hand, the use of a high initial cost tire might not prove as economical a purchase if improperly applied, and might be compared to the wearing of a silk shirt by a ditch digger at his work. A cotton shirt would be more economical, give better service and satisfaction, even tho its initial cost were much less.

As a general outline of types of cars, road and operating conditions, and a basic recommendation of tire equipment, the following is suggested:

Chief's cars (passenger cars),—pneumatic tires.

Straight chemicals, combinations, and service trucks up to and including 14,000 pounds total weight, ready for service, covering wide areas over ordinary roads at from 25 to 35 miles per hour, or occasionally over muddy or deep sand roads,—pneumatic truck tires; same trucks over hard-surfaced roads only, at a lower speed,—either pneumatic or cushion types.

Heavy pumping engines and tractors which seldom leave pavement or hard-surface roads, operating at low speeds,—cushion or solid tires.

Aerial trucks,—solid tires.

Tires for Fire Apparatus in Small Municipalities

Smaller towns and cities, where ordinary dirt roads or deep sand predominates, or where there are heavy, deep snow falls, should invest in the lighter types of apparatus, and will find the use of pneumatic truck tires an assurance of ability to respond promptly to alarms, regardless of road or weather conditions, because of their superior traction. They do not cut into soft ground or snow, because of their wide surface, and they make a hard path for themselves even under these adverse conditions.

There can be no hard and fast rule as to which type of tire—pneumatic or solid—is the proper equipment, using it as a standard by which all cities and fire departments shall guide themselves, for local conditions are the greatest determining factor. Each city and its officials should avail themselves of the expert knowledge of transportation engineers, so that the aim of "lowest ultimate cost," or, in other words, *service*, may be realized, to the benefit of all concerned.

FIRE PROTECTION IS PURCHASABLE.
IT REQUIRES ONLY TRAINED MEN,
DEPENDABLE EQUIPMENT AND
ADEQUATE PUBLIC SUPPORT.

The Advantages of City and County Consolidation

By George C. Sikes
Chicago Bureau of Public Efficiency

THE needs of every large American community include unity and simplicity of government and the short ballot. In large centers of population the case for city and county consolidation is incontrovertible. It is only a question of overcoming public inertia and the opposition of entrenched groups of job-holding politicians.

Experience With Consolidation

Wherever tried, city and county consolidation has been entirely beneficial to the extent that the idea has been carried out. Cleveland's plan of thoro-going consolidation is the logical and proper one, and it should get results. The trouble is that communities making the trial have only gone part way in the direction of unity, simplification, and the short ballot. San Francisco was one of the first communities in the country to merge its city and county governments. The merger took effect in 1856. While the city and county of San Francisco have a single legislative body instead of a city council and a county board, one assessor instead of two, one auditor, one treasurer, etc., that community still continues some needless duplication and elects too many officials. There are two law departments for the combined city and county government, with an elective district attorney as the head of one and an elective city attorney as head of the other—an illogical and absurd situation. There are both a sheriff and a city police department. The ballot is long, many purely administrative officials being chosen by popular election. Board-headed departments are numerous in San Francisco, whereas administrative departments should be single-headed.

Other communities having no separate county government, such as St. Louis, Baltimore, and Denver, have failed, like San Francisco, to carry the policy of unification and simplification to the desired limit. At the present time Denver has one of the simplest governments of all large American cities, with the shortest ballot. The money savings and gains in efficiency in Denver have been especially marked.

Not a Local Movement

The movement for unification of local governments is countrywide. Years ago New York City secured a partial merger of city and county governmental activities. When Greater New York was created, however, the counties within the enlarged municipality could not be merged, so that we have in that community the spectacle of five county governments within one city. A report made by New York City officials shortly prior to the meeting of the last New York State constitutional convention pointed out that the merger of the county governments within New York City would effect a saving in excess of $1,000,000 a year. A recent report of the Chicago Bureau of Public Efficiency on "Unification of Local Governments in Chicago," showed that complete unification of local governments in that community would result in money savings in excess of $3,000,000 a year, to say nothing of other benefits of even greater importance. A report of the Taxpayers' Association of California on the need for city and county consolidation for Los Angeles pointed out that the money saving from consolidation would be approximately $2,000,000 per year.

Local Home Rule

The arguments in favor of the policy of city and county consolidation are too numerous to recount in full. American cities cannot obtain or continue to have home-rule in many of their most important activities unless the local governments naturally comprising one metropolitan entity are brought together in one government. Problems of sewage, water-supply, transportation, city planning, etc., cannot be properly handled by a city government that does not cover the entire metropolitan area.

ACKNOWLEDGMENT.—From Civic Affairs, published by the Civic League of Cleveland.

News and Ideas for Commercial and Civic Organizations

Pontiac's Solution of a Housing Crisis

PONTIAC, MICH.—With large additions to factory plants being rushed to completion and with a program for greatly increasing the working force in at least two of the city's largest industries, Pontiac has faced, since the beginning of the year, a decided shortage of houses. The need has been considerably agitated since March, altho individual building was somewhat spurred on by the fact that the General Motors Corporation undertook a building program of its own which calls for the completion of 500 houses this year. Not until July 15, however, was any definite figure set by local manufacturers as to the actual number of houses which would be needed when their increased production plans had been completed. On that date it was announced by them that about 1,400 houses, in addition to those being built by the General Motors Corporation, would be needed to take care of the requirements of the four largest factories alone.

To determine just how far the city was going in the matter of meeting this need, the Housing Committee of the Board of Commerce made a one-day survey of the city in which the number of new houses under construction this year was ascertained. The result showed that slightly more than 400 were under construction by individual builders. With 1,400 needed and only 400 in sight, it was apparent that something must be done if the city was to keep faith with the manufacturers. Accordingly, a Housing Campaign Committee was formed, composed of the most prominent men in the city, and a campaign to stimulate building on a much greater scale was inaugurated.

A Board of Commerce membership meeting was called, at which plans for houses of different sizes and prices were exhibited. An easy way to finance the building of one or more houses was carefully explained. The manufacturers were called upon again to state their plans definitely and the need for more houses, and then pledges from individuals were called for. The result was far beyond the expectations of the most hopeful. Signed pledges were secured for over 600 houses, the construction of which is to be begun before January 1 next. Because many individuals who were known to be amply able to build were not present at the meeting, it was decided to follow the meeting with a canvass to secure additional pledges. Accordingly, a prospect list of about 300 names was carefully prepared and about 50 men undertook a one-day drive. In this way, over 200 additional pledges for homes were secured.

The slogan of the drive for pledges was "2,000 New Homes for Pontiac—It Can Be Done—It Will Be Done." Window cards bearing this slogan were widely distributed thruout the city and the local press made much of the slogan. A Housing Publicity Committee prepared a leaflet setting forth the objections which team workers might encounter, and also had distributed leaflets describing a way in which the financing of building operations could be facilitated thru the banks and the local Mortgage Investment Company. The latter has been of great value in stimulating the building of houses. Altho only three months old, it has already loaned money to 75 builders and has financed over $200,000 worth of house contracts.

That the campaign did not produce many pledges to build by people who had no intention of fulfilling their pledges is evidenced by the fact that in less than three weeks after the pledging of the first 600 houses, contracts had been let or were being negotiated for nearly 500 houses. Undoubtedly there will be some shrinkage, but it is generally felt that the drive produced results which were decidedly worth while, and it is certain that a great many people

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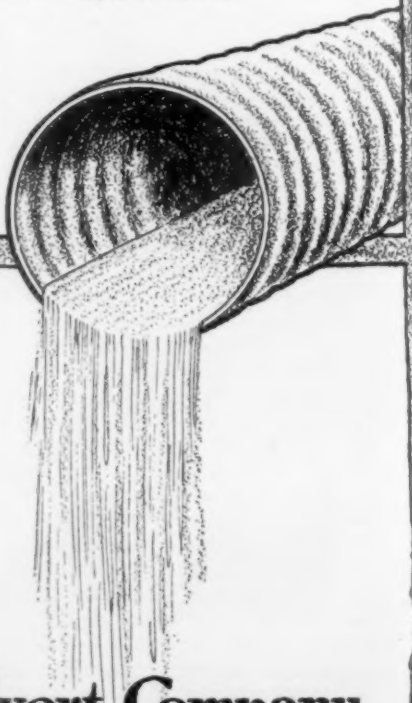
WE make the Half-Round type of culvert from "Genuine Open Hearth Iron" and they can be readily used when the fill is not sufficiently heavy to permit the use of the right size of round riveted pipe for the capacity needed. The bottom sections can be had in lengths of 6, 8 & 10 feet, thereby giving a more rigid culvert than if the bottom were made of shorter sections. The top sections on the other hand are made in multiples of two feet.

HALF ROUND CULVERTS ARE JUST THE THING FOR CITY OR TOWN USE



ROUND Riveted Full Circle Corrugated Metal Culverts have come into almost universal use all over the country. Their value is well understood for general use on main highways; they are the best and are invaluable on secondary roads where the service demanded is much greater. Corrugated metal culverts made of any grade of material, are much more easily handled and installed than any other form of culvert construction; but where permanency has to be considered, it is well to have them of the best grade galvanized iron sheets that are on the market. Our "Genuine Open Hearth Iron" is the best. Send us your address so we can send you further particulars.

The Newport Culvert Company

NEWPORT 524 West 10th St. KENTUCKY

Chicago Office—Majestic Building, Chicago, Ill.

are now building who would not be doing so had the Board of Commerce not conducted the campaign and given publicity to the fact that houses were very badly needed if Pontiac was to take advantage of the opportunity for growth which was being presented. Two concrete results of the campaign were the announcement by the Wilson Foundry Company that it would employ 2,000 additional men by January 1 because the housing facilities for them now seemed to be assured, and the decision by another company to remain in Pontiac in spite of the fact that it had previously announced that it might leave because of the housing situation.

The surprising thing about the campaign was the ease with which men could be induced to build when once the urgent necessity was presented to them and when they were shown how a building project could be financed thru the banks and the Mortgage Investment Company. Every one seemed to catch the enthusiasm of the campaign, and many people who had never considered building are now trying to figure out a way to do so. Every day sees a number of visitors at the Board of Commerce headquarters who wish to secure information as to how they can finance the building of a house.

A total of 2,000 new houses for Pontiac this year now seems assured, and, to quote the *Pontiac Daily Press*, "The Housing Campaign Slogan must now be changed from 'It Can Be Done—It Will Be Done' to 'It Is Being Done.'" By the end of the present year, Pontiac believes that it will be able to announce, "We were given the job of building 2,000 houses—It Has Been Done."

C. W. OTTO,
Managing Director, Pontiac Board of Commerce.

Bradford, Pa., Raises $90,000 for a Road in New York State

BRADFORD, PA.—For several years Bradford had hoped that the New York State Highway Commission would build an improved road from the state line, two miles north of Bradford, to an improved road in New York State on the Allegheny River, a distance of about nine miles, which would put Bradford in touch with the neighboring towns of Salamanca, Olean and Buffalo, and all of the New York road system. The citizens had a settled conviction that now that the war was over the road would be built, when it was learned that because of New York's main-line roads being in such a bad condition as a result of war hauling and lack of repair, no help could be expected from that direction. Bradford felt itself sinking again into a sea of mud. It was intolerable.

However, a little experience the year before in raising over $9,000, nearly half the cost of two miles of slag road, had planted the germ of a greater endeavor, and it was finally decided that Bradford itself should raise $90,000 with which to built a slag road thru the nine miles of mud in New York State. The Board of Commerce appointed a committee to raise the money, and on April 17 last the men set forth. They were somewhat alarmed at their own daring at first, but within a few days, under the spirited leadership of Otto Koch, they became certain of a successful outcome.

The committee well understood that in a town of only 16,000 people every prospect would need to subscribe his full share, and each prospect was made to feel that he was responsible for the success or failure of the whole undertaking. Within a short time, subscriptions amounting to $59,000 from 59 subscribers were announced. Later the total ran up to about $100,000, half of which was in amounts of $1,000 or over, and $20,000 in $500 amounts.

When the money was nearly raised, one of the committee suggested that it be offered to New York State as an aid toward the building of a cement instead of a slag road, whereupon the members of the committee, not too hopefully, journeyed to Albany and offered the New York State Commissioner of Roads $10,000 a mile for a cement road. It required considerable effort to convince the Commissioner that the offer was bona fide and to allay his qualms about the dignity of the state's accepting the money, and after those questions were disposed of, the conference settled down to the details of quick construction, the legality of accepting the money, Federal aid, etc. Those points were all decided favorably. State Commissioner Green accepted the committee's offer, the money was soon collected and placed at his disposal, and he has promised that a contract for about half the job will be let by August 4, 1919.

Otterson Auto-Eductors

Save 50% to 75% to Every City

Cleaning Catch Basins

Indianapolis is another one of the many cities who are keeping ahead of the labor shortage problem by cleaning their catch basins with the Otterson Auto-Eductor. Not only do they save labor, time, and money but the work is done in a more sanitary and satisfactory manner.

A pipe is let down into the basin and the eductor operated on a water ejector principle, "ejects" all the debris—you can't see it—you can't smell it. No more unpleasant odors—no more splashing of mud.

It's high time that all progressive cities adopt the Otterson System of cleaning catch basins. It's a permanent municipal improvement.

Write us for printed matter and more facts.

Equipment mounted on any 5-TON Chassis of suitable standard make.

THE OTTERSON AUTO-EDUCTOR CO.

817 FAIRBANKS BLDG. SPRINGFIELD, OHIO.

By this rapid shifting of the plans, the subscribers are getting approximately fourfold value for their money, and Bradford will soon be released from its bondage of mud as a result of the greatest voluntary effort it has ever put forth.

EARL S. WEBER,
Secretary, Bradford Board of Commerce.

Public Improvements Meeting Produces Results

NEW CASTLE, PA.—The New Castle Board of Trade recently held a Public Improvements meeting which was undoubtedly the best meeting of the year, judging it from the standpoint of its practical results. The program consisted of three addresses of from ten to fifteen minutes each made by public officials. A member of the City Council discussed "Civic Improvements"; the Superintendent of Schools presented "Our Need for Additional School Facilities"; and the chairman of the Board of County Commissioners spoke on "Roads and Other County Improvements."

Each address presented a thoro analysis of the subject assigned. The paper on Civic Improvements showed the need of issuing bonds to the amount of $350,000. The discussion of the needs of our school system proved the necessity of expending a half-million dollars in a program of construction covering a period of five years. The study of the question of good roads showed that $800,000 would have to be raised by a bond issue in order to defray the county's share of necessary road construction. A general discussion followed, in which it was demonstrated that the increased millage in taxation to secure the needed improvements would place a lighter burden upon our citizens than the majority of them had anticipated.

A resolution was passed endorsing the program for bond issues by the city, the school district and the county, in the amounts above named. Within three weeks after this meeting, the City Council, encouraged by the action taken at the meeting, voted an immediate bond issue of $100,000, which will no doubt be supplemented by further issues as the money is needed. The County Commissioners soon thereafter issued a public statement pledging themselves to the people to bond the county for $800,000 for the construction of essential arterial highways, and agreed to submit to the voters of Lawrence County an additional bond issue of $1,200,000, which, with state aid, will give us 84 miles of concrete road.

Prior to this meeting, the Board of Trade had resorted to various forms of publicity in an effort to secure affirmative action in these matters, and, while the responsibility for action cannot be fully accredited to this meeting, undoubtedly the vigorous endorsement given supplied the impetus and sanction necessary, and removed any doubt that had existed in the minds of the public officials. It is expected that the action taken at that meeting will also tend to speed up the construction of additional school buildings.

JOSEPH W. KENNEY,
Commissioner, New Castle Board of Trade.

"Tiny Town" Gives Impetus to Building Campaign

SPRINGFIELD, MO.—An important feature of the "Build Now" campaign conducted by the Springfield Chamber of Commerce early in the year was the "Tiny Town" project, which was originated and put into execution by W. H. Johnson, of Springfield, the local director of publicity for the "Build Now" campaign. The plan had the hearty support of the school authorities. Superintendent W. W. Thomas strongly believes in teaching boys and girls, along with their regular studies, how to become real men and women, and how to acquire homes and assume the responsibilities of citizenship.

The Superintendent inaugurated the Tiny Town movement in the schools by interesting the pupils first in civil government. He allowed them to hold an election, the students in each school first deciding by a general vote of the entire school the question of woman's suffrage—that is, whether the girl students should be allowed to vote for the various offices to be filled, for Tiny Town must have a mayor and a full set of city officials. This burning question was voted upon unfavorably, sad to relate from the standpoint of the girls. A campaign for the adoption of a commission form of government was then carried on by the students. Their political announcements were published in the daily papers just as before a regular election. The officials elected had charge of the administration of Tiny Town during the period of its exhibition in Convention Hall, when the prizes were awarded and the public had its

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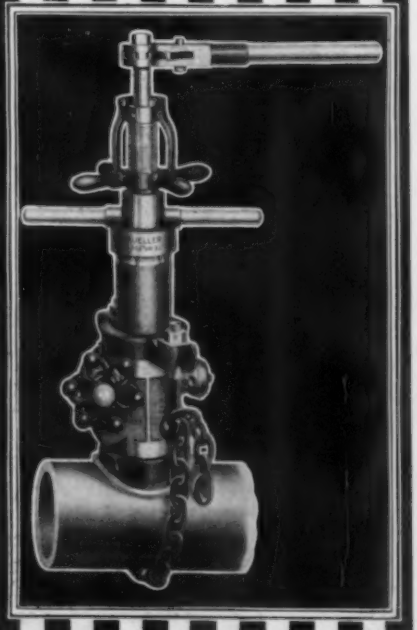


first view of the finished city completely built in ten weeks by public school pupils under the direction of their manual training instructors.

There were, all told, about 1,000 houses; and they were built by nearly as many students, the "Build Now" propaganda was carried into about 1,000 homes. The children of eighteen public schools participated, so that practically every precinct and block in the city was represented. As prizes were awarded to the schools and individuals for the best work, it can readily be imagined that the progress of the contest was a subject of daily discussion in the family circle.

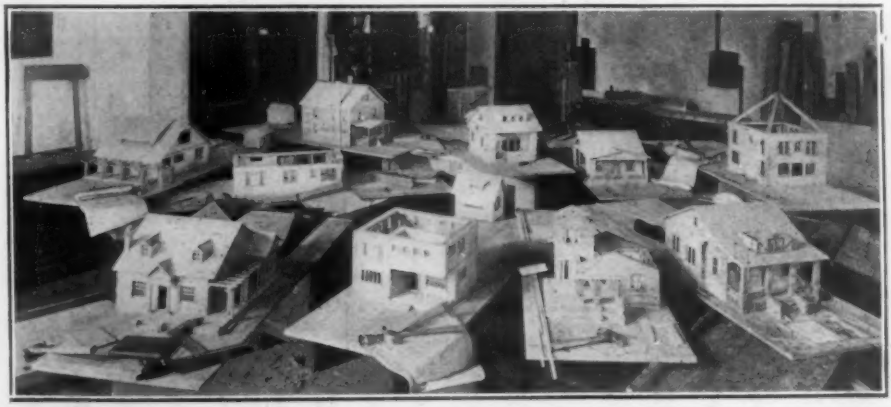
A SECTION OF THE "TINY TOWN" EXHIBIT, SPRINGFIELD, MO. A COMMUNITY BUILDING APPEARS IN THE LOWER LEFT-HAND CORNER

The building of Tiny Town began on May 4, 1919, and continued until June 25, when the completed city was placed on exhibition and cash prizes aggregating $500 were awarded. At the close of the exhibition a regular auctioneer sold to the highest bidders the houses of all the boys who wished to dispose of their buildings, and many of the prize-winning structures were displayed in the windows of the leading stores of the city.

It will be noticed in the accompanying pictures that the houses are all different in design and that they closely follow, in miniature, the general designs of frame house construction. The houses are built on the scale of one-half inch to the foot. The complete city is based upon 155 acres, reduced to the same scale. It has properly laid out streets, parks, etc., with real grass and flowers.

One of the publicity and promotion possibilities of the Tiny Town enterprise was developed thru a poster contest conducted for the 600 or 800 students not engaged in the building ontest, for which the merchants donated prizes of merchandise or money.

As the house-building contest was open only to the manual training students, the majority of whom are boys, an interior home decoration prize contest for the several hundred high school girls was inaugurated. The girls made the interior



A NEAR VIEW OF SOME OF THE MINIATURE DWELLINGS IN COURSE OF CONSTRUCTION

Save Money on Your Street Lighting

The cost of installing new standards in your city may be prohibitive.

However, your street railway companies must have trolley poles to support their wires. Why not, then, get them to co-operate with you in securing

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which will give you street lighting as fine as any city at a much lower expense than the cost of separate standards?

Wooden poles are an eyesore. ELRECO poles are an improvement and will save you the cost of underground construction, the cost of extra lamp standards, the expense of high maintenance costs.

We have placed ELRECO poles in many leading cities. Let us send you our catalogue showing our complete line.

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Union Metal Lamp Standards

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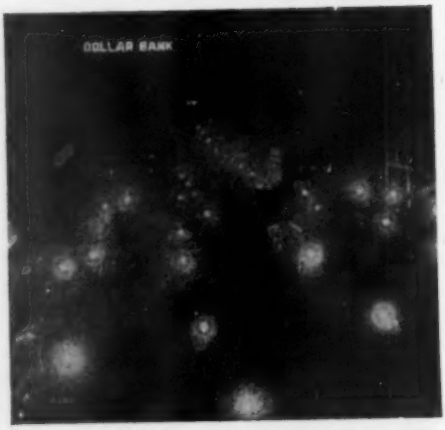

Youngstown, Ohio, Union Metal White Way Lighting on West Federal St. 800 standards.

Design No. 792 with General Electric Form 9 Novalux Unit.

The Right Way for The White Way

Out of an experience dating back to the very beginning of modern street lighting, Union Metal Engineers are pointing out "the right way for the white way."

Union Metal leadership in street lighting systems is not an advertising boast but an engineering fact. It is based on our creative designing work with the country's leading engineers and architects—on our installations in over 1,000 principal cities — and lastly upon the exclusive Union Metal idea of a pressed metal standard—stronger, safer—less costly and far more beautiful than the old fashioned cast iron post. The Union Metal Organization are not simply manufacturers. Our Engineers assist in the design and layout of entire systems.

FREE MANUAL

"Ornamental Street Lighting."

The Union Metal Mfg. Co.

Largest and Oldest Manufacturers of Ornamental Lighting Standards

Canton, Ohio

furnishings and decorations for the houses built by the boys.

The younger children were given an opportunity to do their bit for the home-owning movement by pasting into scrap books cut-outs from magazines and books showing designs of interiors, furniture, etc. The books each contained twelve pages and had printed captions at the top for the various rooms of a house in their regular order. Prizes were awarded for the best books.

It should be stated that all the work involved in the various contests, except the actual building of the houses, was done at the homes of the pupils, for two reasons: First, to get the home folks interested, so that they would talk about house-building and home-decorating, and, second, in order not to break into the regular studies, because the children were likely to feel more interest in Tiny Town than in studying about why and when Caesar crossed the Rubicon.

Whether entirely due to the "Build Now" advertising and Tiny Town or not, Springfield is enjoying an unprecedented building boom. The Tiny Town idea is to be carried out next year on a larger scale, this time in the open. A ten-acre tract will probably be devoted to plotting and landscaping the Tiny Town of 1920.

LOUIS PLANK,
Secretary, Springfield Chamber of Commerce.

$4,500,000 for a Memorial Auditorium and Other Public Improvements in Birmingham

BIRMINGHAM, ALA.—On August 18 this city, by large majorities, voted to bond itself for $4,500,000 for a group of public improvements which will further substantiate its claim of being "the leading city of the South." The voters also made liberal provision for the support of one of the projects. In detail, the propositions as submitted to the people were as follows:

1. Three-mill district school tax
2. $1,000,000 bond issue for high schools
3. $2,000,000 bond issue for other schools
4. $500,000 bond issue for an auditorium
5. $500,000 bond issue for a city hall and public library
6. $500,000 bond issue for fire stations, fire equipment and a fire alarm system

The three first named were not strictly new projects. All had been acted upon before and carried by safe majorities, but legal complications were discovered in the case of one of them, and in another the interest rate of 4½ per cent on the bonds was too low to float them. It was necessary, therefore, to resubmit the proposals. Since the last time they were voted on, conditions have changed in some respects, and there was a genuine element of doubt as to whether they would carry.

The three last-named items were strictly new, tho there had been a popular demand in Birmingham for a long time for a publicly owned auditorium. Of these three issues, the greatest doubt existed as to whether that for a combined city hall and public library would carry.

While the five City Commissioners and a considerable group of the most influential men in the city were reasonably certain that the six propositions would be carried, there was enough doubt about the outcome to make it seem wise to conduct a systematic campaign in their behalf. This was thought especially desirable in order that the majorities might be emphatic, and, above all, because of the special interest in the auditorium project.

Several months ago the Birmingham Chamber of Commerce announced its intention to give Birmingham an auditorium which would be a fitting memorial of the war services of Jefferson County and the city. This promise struck such a popular note that steps were taken at once to appoint a committee of about forty men and women to develop and handle the plans, with the active assistance of the Chamber of Commerce.

At that time there was no suggestion of the additional propositions as they were submitted to the voters. When the City Commission brought forward the proposal of bond issues for schools, a new city hall and library, and fire department needs, an agreement was reached with the Auditorium Committee to include $500,000 for such a structure. Thereupon the Chamber of Commerce financed and the Auditorium Committee handled a regular campaign of publicity in behalf of the six proposals named above, giving them about equal attention. The campaign was directed by the American City Bureau, which had handled a few months previously a reorganization campaign for the Chamber of Commerce.

Has Your City a Public Swimming Pool?

Like McKeesport, Pa., it should have one, where thousands, young and old, can enjoy a refreshing, invigorating swim.

Many municipal pools have been made self supporting. Now is the time to plan for one. Don't let another year pass without bringing the advantages of the seashore to your people.

Concrete is ideal for swimming pools—clean, sanitary, watertight, permanent. Write for a free copy of *"Concrete Swimming and Wading Pools."* Address

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DENVER	HELENA	LOS ANGELES	NEW YORK	SALT LAKE CITY	WASHINGTON

Concrete for Permanence

Birmingham is thus assured of the erection of a group of needed new school buildings; a tax large enough to support the schools adequately; a new building in which to house its public library and municipal officers; stations and equipment which will make its fire department one of the best in the country; and an auditorium which will rank among the finest anywhere.

The auditorium has been a subject of special interest to the people of Birmingham from the beginning. Jefferson County and the city made wonderful records in war service in the provision of both men and money. Since the signing of the armistice, there has been a keen desire to erect a suitable memorial, and to the credit of these loyal people it ought to be widely known that no other form of memorial has ever had such popularity as one the people could use.

The Auditorium Committee announced some time ago that after the voters had approved of the bond issue for $500,000, it would make an effort to raise $250,000 more by popular subscription. This sum added to the $500,000 will provide a place of assembly such as no other city in the South can boast. The time set for this supplementary campaign is October, and there is no doubt that the money will be raised.

C. E. JENKS,
Acting Manager, Birmingham Chamber of Commerce.

"Pigs Is Pigs" in La Crosse, Wis.

LA CROSSE, WIS.—Early this summer the La Crosse Chamber of Commerce held its second annual Pig Club dinner, which was the occasion of much happiness on the part of the twenty-two successful contestants for pigs among the boys and girls in the surrounding country. Besides the young people, the guests included their parents, their teachers and the members of the Merchants' Bureau of the Chamber of Commerce who awarded the prizes. The accompanying picture was taken after dinner, and shows each prize-winner seated on a crate containing his or her pig.

The first of these contests was conducted in La Crosse County by the La Crosse Chamber of Commerce last year, and was very successful. The same course of procedure was adopted this year as last. Letters were sent out to the teachers in the eleven county school districts explaining the plan and asking entrants to apply for blanks and rules of the contest. Any boy or girl between the ages of ten and nineteen years was permitted to compete. It was desired to locate the boy or girl best adapted to handling a pure-bred pig, also those possessing the greatest interest in pigs and the most knowledge of good swine-raising methods. Each teacher, upon receipt of the application blanks for the contest, was asked to enroll as many boys and girls in her district as possible, and to forward the enrollment cards, properly filled out, to the Secretary of the La Crosse Chamber of Commerce. Upon receipt of the filled-out blanks, the Secretary mailed to the teacher in each district a set of ten questions pertaining to pigs and pig-raising. Then the teachers had the pupils in their respective districts assemble at a certain time and answer the questions. The papers containing the answers were forwarded to the Secretary of the Chamber of Commerce, who turned them over to the committee that had been appointed to correct the papers. The scholars showing the best knowledge of pigs and pig-raising were selected from each township and these boys and girls formed the Pig Club.

Over 300 entered the contest in 1918 and eleven young people won prize pigs. This year the number of contestants was doubled and twenty-two boys and girls each won a full-blooded young porker. When the prize

THE PRIZE-WINNERS IN THE PIG CONTEST CONDUCTED BY THE LA CROSSE CHAMBER OF COMMERCE SEATED ON THE CRATES CONTAINING THEIR PRIZES

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34-C-15

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pig becomes the mother of a litter of piggies, the owner of the prize pig is obliged to give one of the babies to the merchant who awarded the prize pig. The merchant then awards the new little pig to some other boy or girl in the next contest, and it is planned to continue this process indefinitely, —that is, as long as the Pig Club is in existence.

JAMES R. KINSLOE,
Executive Secretary, La Crosse Chamber of Commerce.

$90,000 Fund for Farm Development Bureau of Memphis Chamber of Commerce

MEMPHIS, TENN.—One of the most important bureaus of the Memphis Chamber of Commerce is the Bureau of Farm Development, which raised a fund of $90,000 this spring for the purpose of increasing the agricultural prosperity of the surrounding territory. The Bureau anticipated its needs for the next three years in raising this sum of money, which provides it with a working capital of $30,000 for each of the years of 1919, 1920 and 1921.

The promoters of the movement realize the obvious fact, too often overlooked, that if the territory surrounding the city is made prosperous, the city itself will be prosperous, and while it is putting forth worthy efforts to make the farmer's life a happier one, it is also assisting to build a more prosperous Memphis. On account of the geographical location of Memphis, its trade territory stretches into the states of Arkansas and Mississippi, as well as Tennessee. The bankers and business men in every village and town in the district are coöperating in their home communities with the Farm Development Bureau, and this support is one of the principal reasons for the success of the movement. The agricultural colleges of Tennessee, Arkansas and Mississippi are also coöperating. One of the best agricultural experts in the United States is devoting all his time to directing the movement. The lines of agricultural work followed are varied to meet the conditions, needs and possibilities of each farm district in the territory.

It is generally conceded that the way to make any industry, any method or any thought a permanent and effective factor in national life is to introduce it into the schools. The Farm Development Bureau is persuading the rural school authorities to have the courses of study and methods of teaching in the country schools adapted to the highest development of country life and increased farm production. The Bureau is also fostering the organization of clubs for the growing of corn, cotton, peanuts, alfalfa, pigs, calves and colts; and the girls are being organized into canning, poultry, sewing, cooking and flower clubs.

The Bureau issues a weekly sheet entitled "Market Information and Exchange List" for the farmers' benefit. This contains market quotations and items of interest regarding approved marketing methods, coöperative shipping, inquiries for certain farm products, etc. This bulletin keeps the farmer abreast of the times concerning the lines in which he is interested.

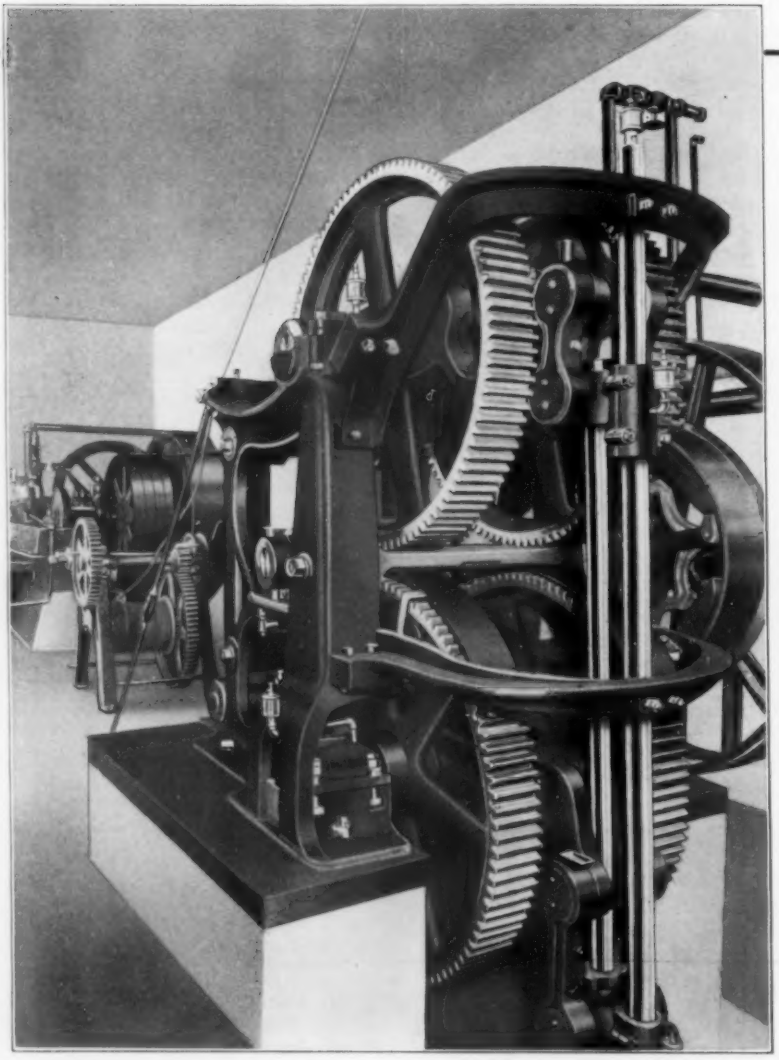
Bureau of Farm Development, Memphis, Chamber of Commerce.

Summer School of Community Leadership Doubles in Size

Three hundred men and women representing chambers of commerce and other civic-commercial organizations in thirty-three states and four Canadian provinces assembled on July 14 at the little mountain resort of Eagles Mere Park, Pa. From California, Texas, Saskatoon, Ontario, Maine, Florida, Alabama, and intermediate points, they came to learn the fundamentals of a new profession.

The growth of this school throws an interesting light on the increasing attention which is everywhere being devoted to the problems of community life, and on the very rapid growth of the profession of community leadership. The first school was held in 1915 at East Dorset, Vt., with fifteen students. In 1916 the number of students jumped to 57, and in 1917 to nearly 100. This number held in 1918, on account of the war, but in 1919, with the resumption of normal activities, the enrollment more than doubled. The same strides that have characterized the development of the chamber of commerce field have marked the growth in numbers of the American City Bureau staff. In 1913, when the Bureau was organized, its field staff consisted of three men. At the present time it numbers considerably over fifty and is constantly making additions.

The purpose of the Summer School has been to equip commercial organization sec-



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retaries to serve their communities better, and to train men who desire to enter the field of community leadership in the fundamental principles on which the successful chamber of commerce of to-day must be built, and in the most approved methods of administration. Besides the study of these general subjects, specific problems likely to be encountered by most civic-commercial organizations were dealt with. A departure from the lecture method of instruction followed in the previous schools was made necessary by the increase in attendance. The student body was split up into nine groups, each numbering over twenty. These groups studied the various subjects in rotation, and came together for the lectures. The Dean of the school was Lucius E. Wilson, Vice-President of the American City Bureau.

In addition to this instruction by senior members of the American City Bureau staff, the students heard lectures by speakers and civic leaders of national repute. Among these were the following:

Howard Strong, Secretary of the Chamber of Commerce, Rochester, N. Y.

Roy S. Smith, Manager of the Chamber of Commerce, Albany, N. Y.

Dean S. S. Marquis, of the Department of Education, Ford Motor Company, Detroit, Mich.

George W. Coleman, President of the Open Forum National Council, Boston, Mass.

Lawson Purdy, President of the National Municipal League, New York City.

J. Horace McFarland, President of the American Civic Association, Harrisburg, Pa.

Perry R. MacNeille, Town Planner, New York City.

Samuel McCune Lindsay, President of the American Association for Labor Legislation, Columbia University, New York City.

Miss Isabel Craig Bacon, Prince School of Education for Store Service, Boston, Mass.

Orrin G. Cocks, National Board of Review of Motion Pictures, New York City.

W. J. Donald, Secretary of the Chamber of Commerce, Niagara Falls, N. Y.

Dorsey W. Hyde, Jr., Municipal Reference Librarian, New York City.

Gaylord C. Cummin, Former City Manager at Grand Rapids, Mich., and now Consultant in Municipal and Utility Problems, with an office at 50 Chambers Street, New York City.

Fred Clayton Butler, Federal Director of Americanization, Washington, D. C.

C. F. Stimson, Special Representative, Community Service, Inc., New York City.

Chesley R. Perry, Secretary of the International Association of Rotary Clubs, Chicago, Ill.

N. R. Peet, County Agricultural Agent, Lockport, N. Y.

Raymond B. Gibbs, Secretary of the Chamber of Commerce, Kansas City, Kans.

Arthur H. Blanchard, President of the American Road Builders' Association and the National Highway Traffic Association, Broadway and 117th Street, New York City.

Homer Talbot, Executive Secretary of the New Jersey State League of Municipalities, Princeton, N

J. Byron Deacon, Director, Department of Civilian Relief, American Red Cross, Washington, D. C.

Henry Gaines Hawn, President of the Hawn School of the Speech Arts, New York City.

Outside of the school sessions, which averaged about seven hours each day, a lively program of sports, out- and in-door, was carried thru, including several baseball games, a big tennis tournament, golf, swimming, a bowling tournament, a chess tournament, a canoe-tilting tournament that held the limelight throut the course, dances, a minstrel show, beach and stag parties, and other forms of entertainment. Altogether, every minute of the day and every evening was well filled, and a splendid spirit of good fellowship prevailed from the start.

New Bulletins

BLUEFIELD, W. VA.—*The Dynamo*, published monthly by the Bluefield Chamber of Commerce.

FORT DODGE, IOWA.—*The Community Builder*, published monthly by the Fort Dodge Commercial Club.

HOLYOKE, MASS.—*Greater Holyoke*, published monthly by the Holyoke Chamber of Commerce.

JAMAICA, N. Y.—*Jamaica Jinjer*, published monthly by the Jamaica Board of Trade.

RENO, NEV.—*Reno & Nevada*, published quarterly by the Reno Commercial Club.

SYDNEY, N. S. W., AUSTRALIA.—*Newsy Notes*, published by the Millions Club of New South Wales.

Recently Issued Printed Matter

ATTLEBORO, MASS.—The Attleboro Chamber of Commerce has issued its year book, which contains a report of activities for the year May 1, 1918, to April 30, 1919, also some interesting Attleboro statistics.

BOSTON, MASS.—"Concerning the Port of Boston" is the title of an illustrated booklet issued by the Boston Chamber of Commerce.

CINCINNATI, OHIO.—"The Social Unit—What Is It?" is the title of a pamphlet issued by the National Social Unit Organization, located in Cincinnati.

FORT SCOTT, KANS.—The Fort Scott Chamber of Commerce has issued a leaflet entitled "Building a Community," in which is given the five-year program adopted by the Chamber in 1916 and a list of the accomplishments three years after its adoption.

LOCKPORT, N. Y.—The July issue of *The Lockport* Leader contains an account of "Some Activities of the Board of Commerce for the First Half of 1919."

NIAGARA FALLS, N. Y.—"Holes in the Road and Holes in the Pocket—A Word to Taxpayers" is the title of a pamphlet issued by the Niagara Falls Chamber of Commerce.

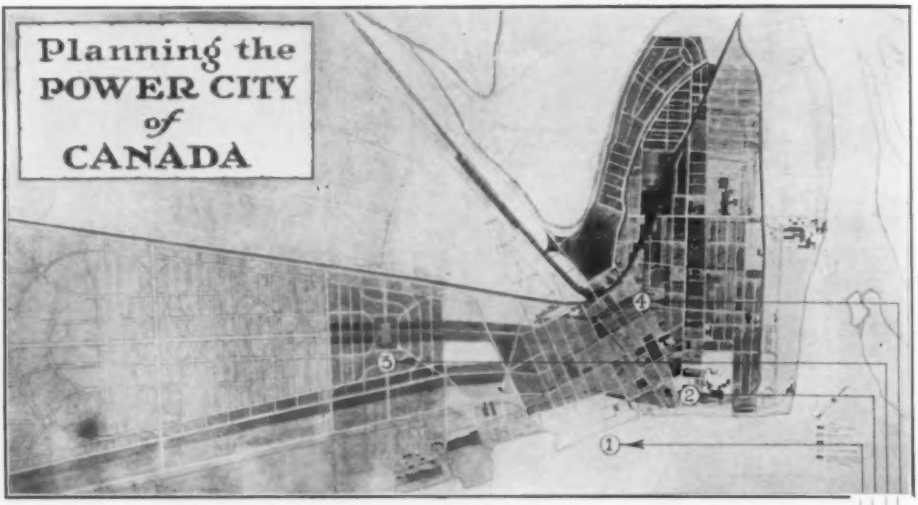
NORFOLK, VA.—The Chamber of Commerce-Board of Trade of Norfolk has recently issued two pamphlets, one entitled "Industrial and Commercial Norfolk, Va.,—A Review of Facts and Figures," and the other, "A Travel-Logue In and Around Norfolk, Virginia, In the Land of Sunshine and Beauty."

SPRINGFIELD, MO.—The Springfield Chamber of Commerce has issued a pamphlet containing the by-laws of the organization, also the list of officers and Board of Governors, and the membership list. Another pamphlet issued by the same organization is headed, "Springfield, Missouri, Invites You to the Year Round Vacation Land of the Ozark Mountains."

WILKES-BARRE, PA.—The Greater Wilkes-Barre Chamber of Commerce has issued its annual report for the year 1918.

WINNIPEG, MAN.—The Winnipeg Board of Trade has issued a leaflet entitled "Ten Things You Should Know About Winnipeg."

THE CHAMBER OF COMMERCE OF THE UNITED STATES has issued a report of its seventh annual meeting, held at St. Louis, Mo., April 29-May 1, 1919, which contains the President's address, the Board's annual report, financial statements, resolutions, and a list of the Directors.



A STUDY OF THE NEW CITY PLAN

For this city of 30,000 inhabitants a complete city plan and municipal expansion report are now being made to encourage and direct the industrial, civic and physical growth to three times its present size.

IN THE SAME CITY—

1. An intensive study of the possibilities and methods of developing a large harbor business is to be made.
2. Plans are being drawn for a $1,000,000 hotel.
3. At this point land has been laid out and plans completed for a residential addition of 1,000 dwellings for industrial workers.
4. Markings indicate changes recommended in existing streets.

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To City Officials and Secretaries of Chambers of Commerce—

Upon request we shall be glad to send you a detailed outline showing the various factors which should be considered in a program of municipal expansion, including (1) economic features in the development of a city; (2) the housing problem; (3) the factors involved in harbor front and inland waterway development and (4) features of a proper city plan.

To those Interested in Any Phase of the Above Service—

We shall be glad to receive inquiries regarding any type of building or engineering design, industrial housing, building appraisals, city planning, community buildings and the planning of sub-division or allotment property.

An attractive architectural reprint "The Town of Perry Point, Md.," will be mailed upon application. This is an illustrated description of a newly built town fully designed by our organization.

THE SERVICE OF ECONOMIC EFFICIENCY

Changes Among the Secretaries

A list of the recent changes and new appointments occurring among the secretaries of commercial and civic organizations thruout the United States.

Readers are asked to notify the Editors of such changes as soon as they occur, in order that the list may be made as complete as possible each month.

TAMPTON AUBUCHON has resigned as secretary of the Louisville Industrial Foundation of Louisville, Ky., to enter the industrial field in a managerial capacity.

ROSCOE C. BANGS has resigned as secretary and treasurer of the Belle Fourche, S. Dak., Commercial Club, to accept a similar position with the Rapid City, S. Dak., Commercial Club.

F. F. BARTH, of Pittsburgh, Pa., has been elected secretary of the Chamber of Comerce at Beaver Falls, Pa., succeeding M. D. Griffith.

O. H. B. BLOODWORTH, JR., is the new secretary of the Board of Trade at Forsyth, Ga.

C. A. BOLTON has resigned the secretaryship of the Mason City, Ia., Chamber of Commerce, to accept the secretaryship of the Winona, Minn., Association of Commerce.

H. H. BOLTON has been selected as the new secretary of the Chamber of Commerce at Gulfport, Miss. Mr. Bolton has been associated with the industrial department of railroads in Alabama for a number of years.

C. M. BYERLY, of Oxford, Ind., has been elected secretary of the Hastings, Nebr., Chamber of Commerce, succeeding Rev. J. P. Thiel.

JOHN H. CAUFIELD has been elected secretary of the Young Men's Business League of Waco, Tex., succeeding W. T. Wheeler, who resigned to become organization director of the West Texas Chamber of Commerce.

A. J. COLE has been elected secretary of the Chamber of Commerce at Pocahontas, Ark.

FRANK M. CROWELL, JR., is the new secretary-treasurer of the Afton, Okla., Chamber of Commerce.

HENRY F. DOOLEY, of Mankato, Minn., and late with the United States Army, has been elected secretary of the Williston, N. Dak., Commercial Club.

WALTER I. EATON, of Buffalo, N. Y., has been chosen as the new secretary of the Board of Trade at Cohoes, N. Y.

HENRY T. FARR has resigned the secretaryship of the Chamber of Commerce at Philipsburg, Pa.

FRED W. FIELD, of Toronto, Ont., has been elected manager of the Collingwood, Ont., Chamber of Commerce.

HARRY F. GREBEY has resigned the secretaryship of the Hazleton, Pa., Chamber of Commerce.

FRANK J. GREEN has resigned as manager of the Janesville, Wis., Chamber of Commerce, to accept the secretaryship of the Chamber of Commerce at South Bend, Ind.

CLARENCE J. GRIFFIN has been selected as the new secretary of the Chamber of Commerce at Carthage, N. Y.

DANIEL C. IMBODEN has resigned the secretaryship of the Chamber of Commerce at Silver City, N. Mex., to become secretary of the Chamber of Commerce at Concordia, Kans., succeeding John G. Scherf.

CAPT. HENRY W. NEIMEYER, of Indianapolis, is the new secretary of the Yuba County Chamber of Commerce at Marysville, Cal., succeeding C. H. Chace, who resigned to become secretary of the Home Products Bureau of the Consolidated Chamber of Commerce of Sacramento, Calif.

W. E. MILNER, of Winnipeg, has been selected as the new managing secretary of the Winnipeg, Man., Board of Trade, succeeding Walter B. Moore.

CLYDE R. MOULTON has resigned the secretaryship of the Bay Shore, N. Y., Community Association, to become secretary of the newly organized Chamber of Commerce at East Palestine, Ohio.

A. R. MUNDORFF, of Lebanon, Pa., has been chosen as the secretary of the newly organized Chamber of Commerce at Hornell, N. Y.

OVE E. OVERSON has resigned the secretaryship of the Chamber of Commerce at Stamford, Tex., to enter into a legal partnership in Ranger, Tex., with Judge George L. Davenport, the firm name being Davenport & Overson.

HENRY E. OWEN has tendered his resignation as manager of the Chamber of Commerce at Beloit, Wis.

JOHN A. PIQUET, of Upper Montclair, N. J., has been elected secretary of the Chamber of Commerce at South River, N. J.

JOHN RICHARDSON, of Syracuse, N. Y., has been elected secretary of the Winchester, Va., Chamber of Commerce, succeeding Arthur M. Field.

GLENN SAMPSON has been chosen as the new secretary of the Normal, Ill., Commercial Club.

E. C. TAYLOR has been elected secretary of the Chamber of Commerce of North Adams, Mass.

GEORGE F. WELLS has resigned as manager of the Chamber of Commerce at Corning, N. Y., to accept the position of manager of the Janesville, Wis., Chamber of Commerce, succeeding Frank J. Green.

HOW are you cleaning your catch basins and sewers? In the old slow, expensive and disease-breeding way, with piles of filth on your streets? Or the "SECO" way?

The "SECO" Portable Pumping Apparatus cleans sewers and catch basins at a saving of 50 to 90% over the old way.

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All Municipalities in Wisconsin Must Provide Comfort Stations

By A. L. H. Street
Attorney at Law, Minneapolis, Minn.

THE Wisconsin legislature recently enacted a law constituting 937f of the Statutes of that state, and reading as follows:

"1. Every city and incorporated village shall provide and maintain a sufficient number of suitable and adequate public comfort stations for both sexes. 2. The state board of health shall establish rules and regulations governing the location, construction, equipment and maintenance of public comfort stations, and may prescribe minimum standards that shall be uniform thruout the state. 3. The governing body of any incorporated city or village may adopt and enforce additional regulations deemed essential for the proper construction and maintenance of such public comfort stations."

Frank R. King, State Plumbing Inspector, states that "the rules and regulations provided for in the act are now being formulated." He further provides a condensed summary of tentative provisions relating to the code of rules to be adopted by the state board of health, which are given in the following paragraphs:

There are 317 incorporated villages and 124 cities in Wisconsin, and all are subject to the provisions of the act. Of these municipalities, 152 have water and sewerage systems, 91 have water-works but not sewerage, and 198 have neither. Cities and villages of the first class can provide washing facilities and water-flushed toilets; those of the second class, under favorable conditions, can provide waste disposal by sewage disposal systems; and those municipalities that cannot provide water-flushed toilet facilities may provide suitable privies, as may be directed by the State Board and local governing bodies.

Requirements concerning water-flushed toilets will be made. Regulations will be made concerning the location of the stations, with a view to insuring proper safety, convenience and sanitation, and permitting such stations to be made a part of such semi-public buildings as halls, court houses, libraries, fire and police stations, public parks, bridge abutments, etc.

Plans for the stations are to be submitted to the State Board of Health, and in some instances to the Industrial Commission. The same bodies or local authorities will supervise the construction. Provision will be made by the State Board for suitable approaches and privacy, etc., separating accommodations afforded both sexes.

Requirements for amply housing the equipment and serving the needs of the particular community will be made. Washing facilities are to be furnished where water and sewer are available. There will be provisions for towels, soap and paper, and service closets.

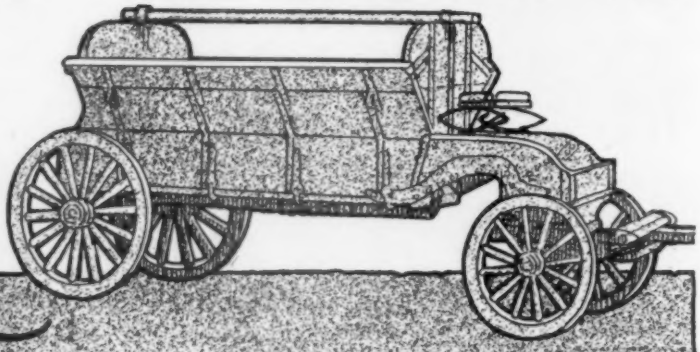
A uniform emblem will be adopted, consisting of a green circle five inches in diameter on the outside and one inch wide, with a white center bearing a four-pointed, orange-colored star. The body of the sign is to be white and the border and lettering a deep blue. These signs will be furnished by the state at cost.

Sections of the rules will deal with the design, construction, materials, light, ventilation, equipment, floors, walls, ceiling, doors, windows, partitions, and painting. Stations are to be open from sunrise until 10 in the evening, except as otherwise provided by local regulation. Care of the stations may be assigned to any proper person, such as the custodian of a building or a local constable, under definite instructions as to his duties. Display of indecent pictures and writing in the stations will be punishable offenses. General requirements will be made for sanitary and safe conditions. Special rules will be issued to apply to stations where water-supply and sewage disposal are not available.

Specimen ordinances, resolutions, etc., are to be furnished cities and villages for guidance. It is suggested that communities desiring to build stations of considerable size secure the assistance of an architect or engineer fully familiar with comfort station building types and equipment.

The Board expresses intention to secure the approval by local governing bodies of the rules to be finally adopted.

ASH WAGONS



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City Manager Plan Thrives Under Handicaps

By Harrison G. Otis
Secretary, City Managers' Association

THE City Manager Plan of municipal government, regarded by Woodrow Wilson as "a marked advance over any plan heretofore tried in this country from the standpoint of efficiency and economy," seems to thrive under the many handicaps forced upon it by the events of the past two years. Notwithstanding the fact that the interest and energy of the entire country have been focused upon the problems of war and reconstruction, more cities took time to place their local government upon this business basis last year than during any preceding twelve months. The record for 1918 of thirty-two additions to the list of city-manager municipalities is apparently to be exceeded in 1919. Already the figures total twenty-five, with two more pledged for 1920. Many charter campaigns are scheduled for this fall.

This numerical increase is of slight significance, but the stories emanating from the scores of our cities, whose business affairs have been entrusted to trained managers during the war, mark a real epoch of municipal achievement.

Among the captions to the tales from eighty-five city-manager municipalities as collected in the Fifth Yearbook* of the City Managers' Association are the following:

Grand Rapids, Lowest Tax, No Overdrafts
Public Safety of First Importance
Wichita Saves Thousands of Dollars
Business Methods Pay at Altoona
Portsmouth Saves $44,000 First Year
Manager as Complaint Specialist
Reduce Debt, Cut Budget, Increase Service
Lowest Infant Mortality Rate
Deficit Turned to Surplus
After Three Years, $132,000 Better Off
Deficit Is Reduced During War
Letter to Tax Payers Invites Suggestions
Adversity Proves Manager Plan Flexible
Public Market and Canning Kitchens
Protection, Economy and Improvements
More Efficiency, Less Taxes
$90,000 Bond Issue Without Tax Increase
New Plan Removes Ill-Feeling at Election
Utilizing Prison Labor and Waste Products
Citizens Endorse Manager Plan
New City Prospers Under Manager Plan
Save Over $2 per Capita, First Year
Insurance and Tax Rates Reduced
Remarkable Record at Fredericksburg
Growth for Next 50 Years Planned
Handicapped by War, New Plan Beats Old
Municipal Utilities a Big Success
Tax Rate on Decline for Four Years
Saves 25 Per Cent of Tax Revenue
Business Men Willing to Serve
Lowered Tax Rate 3 Mills
Complete Information on Public Affairs
Pay Old Debts and Have Surplus
Success in Concentrated Responsibility
Expenses Cut, Welfare Increased

* See page 291.

Hasty judgment would indicate that financial economy is the chief point at issue. To those who prophesied that the new form of government would prove "efficient but cold," the emphasis upon the human element of city affairs, found in these stories, comes as a genuine and happy surprise. Lest the results accomplished, flattering as they are, be misconstrued as a criterion of what the new plan may be expected to produce under more favorable conditions, the editor in the "Foreword" to this Yearbook makes three significant statements:

1. Readjustment of a city's working organization and methods is the first, the hardest and the least appreciated task of a city manager.

2. Government cannot be measured by the tax rate. Efficiency may allow reduced taxes; it may demand increased taxes; it may even dictate a deficit, in emergency, rather than endanger public safety. Real success lies in selling the most good government to satisfied tax-payers.

3. Progress under the new plan has been hampered by two temporary handicaps: war conditions, with scarcity and high cost of labor and materials, yet bringing increased demands for service; and the *newness* of city-manager government, with a consequent dearth of trained managers, a frequent lack of understanding on the part of commissioners, and a citizenship not yet wholly awakened to its task of participating in civic affairs and to the joy of disinterested community service.

Studebaker builds horsedrawn Sprinklers, as well as Units that can be mounted on standard makes of Motor Trucks.

Studebaker

South Bend, Indiana

Largest Vehicle Manufacturers in the World—Established 1852

The City's Legal Rights and Duties

A Monthly Department of Information for City Attorneys and Other Municipal Officers, Summarizing Important Court Decisions and Legislation

Conducted by A. L. H. Street, Attorney at Law

Nuisances in Streets

A decision of a county court in Pennsylvania raises some doubt in our minds as to whether it is sound, and whether it is in line with the weight of judicial authority. In this case—Malas vs. City of Coatesville, 10 Pennsylvania Municipal Law Reporter, 209—Judge Hause of the Chester County Court of Common Pleas holds that a city is not liable to an owner of abutting property for permitting manure accumulating from passing horses to remain in a street, altho the condition may be so filthy and unsanitary as to interfere with the enjoyment of the property.

Plaintiff based his suit on the fact that his restaurant business had been seriously injured by defendant permitting offensive odors to escape from the street on account of accumulated filth. The charter under which the city operates confers power to abate nuisances, but the defendant was sustained in a contention made before the Court that this power was not mandatory but permissive only.

"Whether or not a particular thing in a street is a nuisance that may affect an abutting owner, but not the traveling public, is a question solely for the municipal authorities. When they act with reference thereto, they do so in virtue of authority conferred upon them by statute, and their action is discretionary."

The law editor of THE AMERICAN CITY has always been under an impression that judicial authority has established the principle that a city has no more right to *permit* a dead horse to remain in a street in front of private property when that constitutes an actual nuisance than it would have to actively create a nuisance by hauling the animal's carcass there.

Invalid Sewer Assessments

Land which is not, and cannot be, drained by a sewer cannot be assessed on account of its construction. (Oregon Supreme Court, Duniway vs. Cellars-Murton Co., 179 Pacific Reporter, 561.)

Municipal Control Over Streets

In Vermont a city has no proprietary right of compensation for the use of streets by an electric power company for a line of poles and electric wires, the right of granting the privilege being primarily with the State Legislature. And where an electric light and power company had occupied streets in Burlington before the city's charter was so amended as to give the city the right to regulate the use of the streets by such companies, the company had such vested right to continue to use the streets that the city could not impose as a condition upon such continued use that the company reserve the top gain of each pole for city purposes. (Vermont Supreme Court, Burlington Light & Power Co. vs. City of Burlington, 106 Atlantic Reporter, 513.)

Amendment of Pension Acts

Altho a police officer of the city of Chicago completed twenty years' service prior to July 1, 1917, and thereby became entitled, under an existing law, to a pension, he had no such vested right to it as to preclude the state from depriving him of the pension under an amendment of the law, effective that day, limiting the right to a pension to police officers who have not only served twenty years but who have also attained the age of fifty. (Illinois Supreme Court, Beutel vs. Foreman, 123 Northeastern Reporter, 270.)

Licensing Rooming Houses

The business of keeping a rooming-house is one so far affecting the public health, morale, or welfare, that it is proper for a city to adopt an ordinance requiring persons conducting such business to obtain a license, where the legislature in the exercise of the police power has conferred upon

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the municipality the necessary authority to pass ordinances upon this question. (Georgia Supreme Court, Eisfeldt vs. City of Atlanta, 98 Southeastern Reporter, 495.)

Right to Increase Gas Rates

A gas company which has accepted a franchise for a stated period, with maximum rates for service fixed in the contract, will not be permitted to increase those rates on its own motion, altho war conditions may have rendered the rates so established unprofitable. This is the gist of the decision handed down by the United States District Judge in the Minnesota case of City of Moorhead vs. Union Light, Heat & Power Co., 255 Federal Reporter, 920.

Altho defendant's franchise does not expire until 1922, and this franchise specified $1.80 as the maximum charge for illuminating purposes and $1.45 for fuel gas, defendant gave notice of intention to advance the rates to $2.

The city sued to enjoin the increase in rates, and the Court, in overruling defendant's objection that war conditions had so increased the cost of production and distribution that continuance of the old rates would involve a loss to the company, said:

"The meat of the case is this: Does the fact that defendant's contract with the city has, by reason of the European war, become unprofitable, justify the Court in releasing defendant from the contract? Does a public utility company, which contracts to supply the public with a commodity like gas or electricity, occupy a different position from other contractors who have agreed to supply articles the cost of which have been greatly enhanced by the war? Is a public utility company entitled to modify its contract whenever a change is necessary in order to make performance profitable? When cities are expressly vested with power to enter into contracts as to rates, it is now established by repeated decisions of the Supreme Court that such contracts are binding upon the city even tho the public utility company may make extortionate profits therefrom. * * * Public utility companies are insistent that their rights under such contracts be protected by the courts against every attempt of the state or city to reduce rates, and when the city's power to make the contract is clear the courts have uniformly restrained their violation. If such be the law in favor of public utility companies, why should not the converse be equally true, and such companies be compelled to perform their contracts even tho they may result in loss?"

The Court notes, however, that in those states, such as New York, Massachusetts, California and Washington, which have public service commissions clothed with power to regulate public service rates, charges may be increased or decreased according to the inadequacy or excessiveness of existing rates, measured by fair returns to public service corporations on their investments. There is no state agency in Minnesota empowered to alter contract rates for gas service in municipalities. Therefore defendant must abide its contract, except as the city may consent to an increase in rates.

Municipal Debt Limits

The provision of the California constitution which prohibits cities from incurring liabilities exceeding annual income unless assented to by two-thirds of the voters does not apply to the issuance of funding or refunding bonds to discharge a judgment obtained against a municipality on account of personal injury due to negligence on its part. (California Supreme Court, City of Long Beach vs. Lisenby, 179 Pacific Reporter, 198.)

Taxing Telegraph Companies

An ordinance levying a license tax upon the intrastate business of a telegraph company transacted within the corporate limits of the city, but expressly exempting from its operation interstate and government business, is not invalid. (Alabama Court of Appeals, Western Union Telegraph Co. vs. City of Decatur, 81 Southern Reporter, 199.)

Ordering Service Extensions

In ordering extension of a water-main for the benefit of property owners on an outlying street in New Castle, Pa., by the local water company, the Pennsylvania Public Service Commission recently declared that extensions will be ordered where reasonably required, altho the water company's franchise may limit extensions to cases where certain consumption is guaranteed. The Commission added:

"Where a public utility assumes to serve a community it should consider its obligation to serve the entire district described in its charter and should so plan its affairs that it will be able so to do, within reasonable grounds. It cannot select and serve only the profitable patrons. Respondent has the right to collect a revenue sufficient to pay for operation, depreciation and a fair return upon its fair value. This protection and return enable it to maintain its credit and thereby secure additional capital to make reasonable extensions and ad-

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Secretary of Labor.

ditions when and as needed." (10 Pennsylvania Municipal Law Reporter, 223.)

Binding Character of Street Railway Franchise

A street railway company which has accepted a municipal franchise for the operation of a railroad for a fixed term of years, in which the fares to be charged during the life of the contract are fixed, is not entitled to have the franchise terminated on the ground that abnormal increases in wages, caused by the war and action of the War Labor Board, render it impossible to continue to operate under the franchise without bankrupting the company. If the company did not desire to run the risk of such abnormal conditions arising, it should have been guarded against by specific provision in the contract. The fixing of wages to be paid by a street railway company in arbitration by the War Labor Board, altho at a rate which, under the charter contract between the company and city, is confiscatory, is not such a direct interference with the contract by the Government as to excuse the company from performing its agreement. (United States District Court, Southern District of Ohio, Burr vs. City of Columbus, 256 Federal Reporter, 261.)

EDITOR'S NOTE.—This decision has become final thru its affirmance by the United States Supreme Court.

Validity of Fire Regulations

The legislature having expressly granted power to cities to prescribe fire limits and to regulate the kind of materials to be used and the character of buildings to be erected within those limits, courts are powerless to question the wisdom or motives of a city in exercising that right. (Arizona Supreme Court, Mosher vs. City of Phœnix, 181 Pacific Reporter, 170.)

Slippery Pavement as Defect

A city was liable for maintaining its paved street at a crossing in such slippery condition that a pedestrian fell, where the place was obviously daugerous. (Kansas City Court of Appeals, Berry vs. City of Sedalia, 212 Southwestern Reporter, 34.)

Colorado Workmen's Compensation Act

The Colorado Workmen's Compensation Act is not broadly enough worded to provide for an award in favor of the dependent relatives of a police officer killed by one whom he was attempting to arrest. (Colorado Supreme Court, Helburg vs. Town of Louisville, 180 Pacific Reporter, 751.)

Flooding of Private Property

Plaintiff, owner of a warehouse, consented to construction of a railroad grade in an abutting street, knowing that surface waters would thereby be collected in the street. Negligent deposit of trash in the street by the city contributed to a flooding of the basement of the warehouse. But it is held by the South Carolina Supreme Court in the case of Kirkland Distributing Co. vs. City of Columbia et al., 98 Southeastern Reporter, 843, that the city is not liable in damages to plaintiff, since plaintiff's own negligence combined with that of the city in producing the injury.

Extra Work Under Municipal Contracts

Where a contractor erecting a municipal building was obstructed by representatives of the city in the prosecution of his work, and thereby was required to do extra work, he became entitled to compensation covering his damages, notwithstanding the fact that the contract contained a provision limiting the city's liability for extras to those approved by certain officers of the city. The contractor also became entitled to damages arising from the city's furnishing him defective plans for the building, resulting in his being compelled to do extra work. (New York Supreme Court, Appellate Division, M. L. Ryder Building Co. vs. City of Albany, 176 New York Supplement, 456.)

Necessity for Contractor's Bond

A street railway company is not entitled to recover against a city for hauling crushed stone for use in improving the municipality's streets where there was no compliance with a requirement in the city's charter for giving of a bond to secure faithful performance of all contracts involving $500 or more. One contracting with a city is chargeable with notice of all pertinent provisions of the municipal charter. And when a charter declares that a bond "shall" be taken in certain matters, there is no power in the city authorities to waive the security, altho the contractor may be regarded as wholly responsible financially. (Massachusetts Supreme Judicial Court, Bay State Street Railway Co.

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vs. City of Woburn, 122 Northeastern Reporter, 268.)

Safety of Sidewalks for Travel

Holding that a pedestrian was not entitled to recover damages for injury sustained in stumbling over a curbing defining the limits of a driveway affording access to a cemetery over a sidewalk, the Appellate Division of the New York Supreme Court said in the recent case of Daly vs. Trinity Church, 176 New York Supplement, 734:

"The pedestrian is not entitled to an absolutely level and unobstructed passageway. The municipal authorities may erect hydrants, lamp posts, electric light poles, or authorize the erection of hitching posts, stepping-stones, or may, and of necessity must, elevate the sidewalk above the gutter and roadway. It is the duty of the pedestrian to exercise his right of passage along the sidewalk with regard to these lawful incumbrances or inequalities. If thru inattentian he suffers injury, it is his own fault or misfortune."

Damage Caused by Municipal Drainage

A city is not liable for flooding of private premises caused by insufficiency of drains provided by the municipality, where the flooding follows extraordinarily heavy rainfall. (Wisconsin Supreme Court, Andrus vs. City of Ashland, 172 Northwestern Reporter, 721.)

Adverse Possession of Land

The mere fact that an owner of unfenced land permitted pedestrian and vehicular traffic to pass over it for thirty years or more did not vest in the city a permanent right of way across the land for street purposes. (Louisiana Supreme Court, Reymond vs. City of Baton Rouge, 82 Southern Reporter, 75.)

On the Calendar of Conventions

SEPTEMBER 15-17.—CLEVELAND, OHIO.
American Society of Sanitary Engineering. Annual convention. Secretary, J. F. Doud, City Hall, Cincinnati, Ohio.

SEPTEMBER 16-18.—NORTH VANCOUVER, B. C.
Union of British Columbia Municipalities. Annual convention. Secretary, A. W. Gray, City Hall, New Westminster, B. C.

SEPTEMBER 17-19.—MUSCATINE, IOWA.
League of Iowa Municipalities. Annual convention. Secretary, Frank G. Pierce, Marshalltown, Iowa.

SEPTEMBER 22-23.—KANSAS CITY, MO.
Missouri Association of Commercial Organization Secretaries. Annual convention. President, Harry W. Graham, Chamber of Commerce, Chillicothe, Mo.

SEPTEMBER 23-24.—DANVILLE, VA.
League of Virginia Municipalities. Annual convention. Secretary, L. C. Brinson, Portsmouth, Va.

SEPTEMBER 23-24.—BELFAST, ME.
Maine State Board of Trade. Annual meeting. Secretary, Edward M. Blanding, Bangor, Me.

SEPTEMBER 23-26.—CHICAGO, ILL.
International Association of Municipal Electricians. Annual convention. Secretary, Clarence R. George, Houston, Tex.

SEPTEMBER 24-25.—ERIE, PA.
American Water Works Association, Central States Division. Annual convention. Secretary, R. P. Bricker, Shelby, Ohio.

SEPTEMBER 25-27.—SPOKANE, WASH.
Washington Association of Commercial Organization Secretaries. Annual convention. Secretary, A. F. Marsh, Chehalis, Wash.

SEPTEMBER 30—OCTOBER 3.—ALBANY, N. Y.
New England Water Works Association. Annual convention. Secretary, Willard Kent, Narragansett Pier, R. I.

OCTOBER 1-4—CLEVELAND, OHIO.
National Safety Council. Eighth Annual Safety Congress. Secretary, S. J. Williams, 208 La-Salle Street, Chicago, Ill.

OCTOBER 2-5.—URBANA, ILL.
Better Community Conference. Held under the auspices of the University of Illinois. Address R. E. Hieronymus, Community Adviser, Urbana, Ill.

OCTOBER 8-10.—ATCHISON, KANS.
League of Kansas Municipalities. Annual convention. Secretary, Albert A. Long, University of Kansas, Lawrence, Kans.

OCTOBER 15.—BOSTON, MASS.
Massachusetts Chamber of Commerce. Annual meeting. Secretary, Edward G. Stacy, 6 Beacon Street, Boston, Mass.

OCTOBER 20-22.—WINNIPEG, MAN.
National Educational Conference of Canada. First conference. Address, Professor W. F. Osborne, University of Manitoba, Winnipeg, Man.

OCTOBER 20-24.—NEW YORK CITY.
American Prison Association. Annual Prison Congress. General Secretary, Joseph P. Byers, 3510 Lancaster Avenue, Philadelphia, Pa.

OCTOBER 20-25.—RIVERSIDE, CAL.
League of California Municipalities. Annual convention. Executive Secretary, W. J. Locke, Pacific Building, San Francisco, Cal.

OCTOBER 27-29.—INDIANAPOLIS, IND.
National Association of Commercial Organization Secretaries. Annual convention. Secretary, Willis Evans, Association of Commerce, Peoria, Ill.

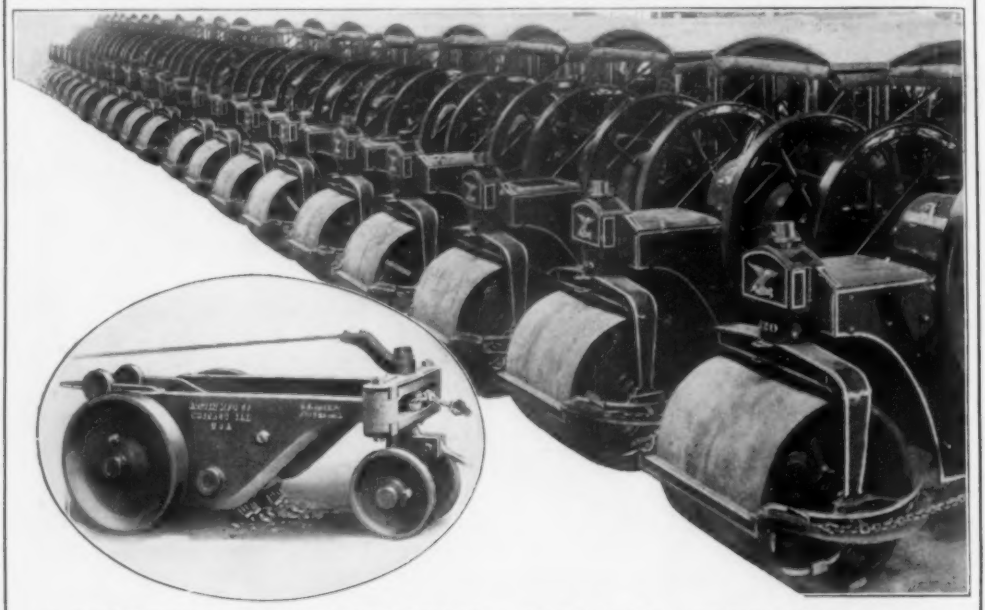
OCTOBER 27-30.—NEW ORLEANS, LA.
American Public Health Association. Annual meeting. Secretary, A. W. Hedrich, 169 Massachusetts Avenue, Boston, Mass.

OCTOBER 28-29.—EDMONTON, ALTA.
Union of Alberta Municipalities. Annual convention. Secretary, J. D. Saunders, Camrose, Alta.

OCTOBER 29-31.—PHILADELPHIA, PA.
American Civic Association. Annual convention. Secretary, E. E. Marshall, Union Trust Building, Washington, D. C.

NOVEMBER 12-14.—NEW ORLEANS, LA.
American Society of Municipal Improvements. Annual convention. Secretary, Charles Carroll Brown, 304 East Walnut Street, Bloomington, Ill.

DECEMBER 26-30.—CLEVELAND, OHIO.
National Municipal League. Annual convention. Secretary, Clinton Rogers Woodruff, North American Building, Philadelphia, Pa.



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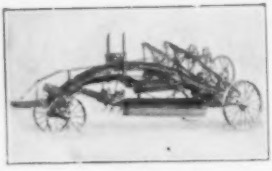

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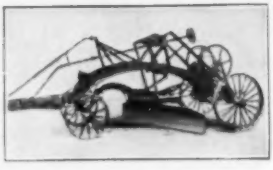

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Municipal and Civic Publications

See also Department of News and Ideas for Commercial and Civic Organizations

Fifth Yearbook of the City Managers' Association.

HARRISON G. OTIS, Secretary, Tribune Building, New York. 1919. 175 pp.

A number of brief reports from cities operating under some form of city-manager government, the proceedings of the annual meeting of the City Managers' Association held November 6-8, 1918, at Roanoke, Va., a summary of city manager data, a list of city-manager municipalities with a map showing their distribution thruout the United States, and photographs of members of the Association are the chief features of this volume. Full reports of all discussions and speeches at the annual meeting are included. A list of the lecture titles, with speakers, follows: The Model City Charter, by Clinton Rogers Woodruff; Proportional Representation, by C. G. Hoag; Establishing and Maintaining Commission-Manager Government, by Lucius E. Wilson; Progress, Problems and Pitfalls of the New Profession, by O. E. Carr; A Reconstruction Program for City Managers, by Richard S. Childs; City Planning After the War, by Myron H. West; and Duties and Problems of the City Manager, by Kenyon Riddle.

Automatic Sprinkler Protection.

GORHAM DANA, Manager, Underwriters Bureau of New England. John Wiley & Sons, Inc., New York City. 1919. vii + 443 pp. 349 figures.

This book deals with all phases of automatic sprinkler protection, and is an excellent publication for municipal officials and fire engineers, as well as for chambers of commerce wishing to have valuable fire prevention literature in their libraries.

Developing Executive Ability.

ENOCH BURTON GOWIN, Assistant Professor of Commerce, New York University. The Ronald Press Company, New York. 1919. xxiv + 486 pp.

This book aims to train the busy executive in the vision and systematic methods necessary to success. A large number of definite helps, based on a thoro knowledge of business psychology and practice, are presented in readable, attractive style.

Social Games and Group Dances.

J. C. ELSOM, M. D., and BLANCHE M. TRILLING, Department of Physical Education, University of Wisconsin. J. B. Lippincott Company, Philadelphia. 1919. 258 pp. 53 illustrations and many music scores.

A collection of games and dances suitable for community and social use.

How to Face Peace: A Handbook of Community Programs.

GERTRUDE MATHEWS SHELBY. Henry Holt & Company, New York. 1919. viii + 311 pp.

The wealth of suggestions for community reconstruction programs contained within the covers of this book should be of much practical and inspirational value to communities and individuals desiring to find their places in the big, constructive work now before the nation. "Jobs little and big" are described; and every community is urged to realize that well-defined plans and team-work form the key-note of success. Special chapters are devoted to the following problems: employment of returned soldiers, women and children in industry, recreation, health, housing, food conservation, gardening, Americanization, education, community organization, publicity and finance, and discussion of national aims. An appendix contains a program in outline of state, county and municipal reconstruction projects, prepared and published by the American City Bureau, also a bibliography of helpful literature on the subject.

Wholesome Citizens and Spare Time.

JOHN L. GILLIN, Professor of Sociology, University of Wisconsin. Issued by the Survey Committee of the Cleveland Foundation, 2025 East Ninth Street, Cleveland, Ohio. 1918. 182 pp.

One of the seven sections of the report of the Recreation Survey of Cleveland conducted in 1917 by the Survey Committee of the Cleveland Foundation. This section endeavors to show what part recreation has had in the development of wholesome citizens and what kinds of recreation have been influences in the lives of these citizens. Data collected concerning 160 "wholesome citizens" of Cleveland form the basis of the Committee's recommendations, which should be of interest to officials and others charged with responsibility for recreational activities.

School Work and Spare Time.

F. G. BONSER, Professor of Education, Columbia University. Survey Committee of the Cleveland Foundation, address above. 1918. 176 pp.

Another of the Cleveland Recreation Survey reports. In two parts: (1) What School Work Does and Might Do for Spare Time; and (2) What Spare-Time Activities Do and Might Do for School Work.

Broken Homes: A Study of Family Desertion and Its Social Treatment.

JOANNA C. COLCORD, Superintendent of the Charity Organization Society of New York City. Russell Sage Foundation, New York. 1919. 208 pp.

An analysis of some of the causal factors in the problem of the deserter and a discussion of recent changes in methods of social workers in handling this problem. A number of concrete illustrations are discussed, and some possible future steps, both legal and social, are suggested. It should be of especial value to officials in Departments of Charities, and Courts of Domestic Relations.

Zoning and City Planning for Portland, Ore.

CHARLES H. CHENEY. Bulletin No. 1 of the City Planning Commission, Portland, Ore. 1919. 55 pp. Illustrated by photographs and maps.

A practical outline of the reasons for zoning the city of Portland and a summary of the results of the housing survey and the findings of the City Planning Commission up to June, 1919.

The Six-Hour Day and Other Industrial Questions.

LORD LEVERHULME. Henry Holt & Company, New York. 1919. xv + 344 pp.

This collection of some of the more important addresses of Lord Leverhulme contains his comments on the six-hour day and co-partnership, and other addresses

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dealing with various industrial and social questions, such as housing, education in its relation to business, day-work as compared with piece-work, industrial administration, and the "mirage" of socialism. Not only has Lord Leverhulme stated clearly in his speeches his ideas regarding present-day industrial reform, but he has also described his application of these conclusions to his own large works.

Democracy: Discipline: Peace.

WILLIAM ROSCOE THAYER. Houghton Mifflin Company, New York. 1919. 124 pp.

An American Labor Policy.

JULIUS HENRY COHEN. The Macmillan Company, New York. 1919. 110 pp.

Municipal Reform in Philadelphia.

An analysis and commendation of Philadelphia's new charter and reform laws, "characterized by experts in municipal legislation as the most advanced step that has yet been taken affecting the government and administrative efficiency of cities of large size in the United States." An introductory summary by Senator Boies Penrose and a review of the benefits of the new charter by Clinton Rogers Woodruff are included. 1919. 59 pp. (This pamphlet and a copy of the charter can be secured from the Bureau of Municipal Research of Philadelphia, Frederick P. Gruenberg, Director.)

Suggested Minimum Standards for Child Welfare.

The Washington Child Welfare Conference held May 5-8, 1919, divided into three sections to consider: (1) Child Labor and Education; (2) Public Protection of the Health of Mothers and Children; and (3) Children in Need of Special Care. The minimum standards formulated and recommended by the three sections have been printed in a pamphlet which is now being issued by the Children's Bureau, U. S. Department of Labor, Washington, D. C. 16 pp.

A City Plan and How to Get It.

A paper delivered before the Wisconsin Association of Commercial Secretaries on June 10, 1919, by James R. Kinsloe, Secretary, Chamber of Commerce, La Crosse, Wis., on "The Secretary's Part in Educating His Community to City Planning," first emphasizes the secretary's need of a thoro understanding of the subject before he attempts to educate the community, and then briefly outlines a program for him to follow in his educational campaign.

Municipal Reports

Boston's Municipal Register for 1918.

Containing a register of the city government, rules of the City Council, amended city charter of 1909, a survey of the city departments with lists of officials, also various statistics relating to the city. 360 pp. (Apply to James Donovan, City Clerk.)

Engineering Department, Port Arthur, Texas.

Clarence E. Ridley, City Engineer of Port Arthur, Texas, has completed the preparation of the first annual report of the Engineering Department for the year ending March 31, 1919, and will be pleased to exchange for similar reports from other cities or to send copies upon request. 73 pp., illustrated by maps and photographs.

Board of Park Commissioners, Minneapolis, Minn.

1918. 98 pp., including 28 full-page photographs and 2 sketches of plans. Large city map in attached envelope. (Apply for copies to J. A. Ridgway, Secretary.)

Report of the Director of Education, Manila, Philippine Islands.

An interesting report of school activities in Manila during the year 1918, illustrated by numerous photographs. 195 pp. (Apply to W. W. Marquardt, Director of Education, Manila, P. I.)

Bureau of Water, Buffalo, N. Y.

For year ending June 30, 1918. 86 pp. (Apply to Harry O. Wait, Secretary, Bureau of Water, Department of Public Works, Buffalo, N. Y.)

Board of Public Utilities, Los Angeles, Cal.

July 1, 1917, to June 30, 1918. 88 pp., illustrated with graphs. (Apply to Herbert S. Payne, Secretary.)

Board of Public Works, Holland, Mich.

For year ending March 17, 1919. 35 pp. (Apply to Wm. Winston, Clerk.)

Quadrennial Report of Board of Local Improvements, Chicago.

An account of the activities of the department for the period 1915 to 1918. 100 pp. Illustrated. (Write to Edward J. Glackin, Secretary.)

Health Department, Springfield, Mass.

Year ending December 31, 1918. 50 pp. (Write to Grace E. Warren, Chief Clerk.)

City Plan Commission, St. Louis, Mo.

For year ending April 30, 1919. 8 pp. (Apply to Burton Bunch, Secretary.)

Board of Health, Fall River, Mass.

Year ending December 31, 1918. 118 pp., attached chart and graph. (Apply to Frank L. Larkin, Secretary.)

Town Officers of Marion, Mass.

66th annual report. Year ending December 31, 1918. 157 pp. (Apply to Henry C. Luce, Town Clerk.)

Town of Southington, Conn.

For year ending August 31, 1918. 48 pp. (Apply to Harry H. Merrell, Town Clerk.)

Commission Government in Marquette, Mich.

Annual message of the City Commission and the reports of the departments for the year 1918. 119 pp., illustrated. (Apply for copies to Elsie M. Dupuis, City Clerk.)

Board of Water Commissioners, Johnstown, N. Y.

Forty-first annual report, filed with the City Clerk, January 10, 1919. 46 pp., 8 photographs. (Write to Grover E. Yerdon, City Clerk.)

City of Portsmouth, Va.

Mayor's annual message, together with municipal reports for the year 1918. 92 pp. (Apply to J. T. Hanvey, Mayor.)

Board of Park Commissioners, Fort Wayne, Ind.

Fourteenth annual report, 1918. 45 pp., including 16 attractive photographs, 2 plans of park developments and 1 cartoon. (Write for copies to David N. Foster, President of the Board of Park Commissioners.)

Board of Park Commissioners of the Cleveland Metropolitan Park District.

First annual report, for the period beginning July 30, 1917, and ending December 31, 1918. 50 pp., copiously illustrated. (Issued by Cleveland Metropolitan Park Board.)

Milwaukee Water-Works.

Year ending December 31, 1918. 111 pp. + attached graphs, map and table. (Apply to H. P. Bohmann, Superintendent of Water-Works, Milwaukee, Wis.)

Juvenile Commission, Hartford, Conn.

Tenth annual report, for the year ending April 30, 1919. 30 pp. (Apply to Miss Eva Cohen, Secretary, The Juvenile Commission, Hartford, Conn.)

Board of Commissioners, Rockford Park District.

Year ending December 31, 1918. 16 pp. (Apply to the Secretary, Frank J. O'Brien, Rockford, Ill.)

Women's Department House of Correction, Chicago.

Report of social service work in the Women's Department House of Correction from September 1, 1917, to March 1, 1919. 36 pp. (Apply to Miss Louise Osborne Rowe, Commissioner, Department of Public Welfare, Chicago, Ill.)

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Marchant

"WOULDN'T RUN AN OFFICE WITHOUT ONE"

So says one of our leading county officials in Illinois.

A machine such as the

MARCHANT CALCULATOR

that accomplishes the work of two or three good deputies and proves the work for you as you go along, is surely worth investigating.

City and County officials are equipping their offices with modern devices for the saving of time and energy.

Whether it is:—

ENGINEERING PROBLEMS
TAX APPORTIONMENT
BOND REDEMPTION
SQUARE ROOT
APPRAISALS
EXTENSIONS
TRAVERSES

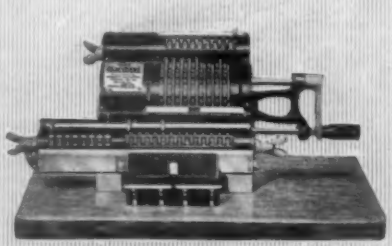
Or just the simple yet brain tiring multiplication, and divisions you will find that the Marchant will do your figuring for you and do it efficiently too.

We are always glad to explain the time and labor saving properties of the Marchant as applied to calculations.

Write our nearest office:—

Boston:	220 Devonshire St.
Philadelphia:	900 Bulletin Bldg.
Chicago:	237 Railway Exchange Bldg.
Denver:	1219 Foster Bldg.
Seattle:	262 Empire Bldg.

MARCHANT CALCULATING MACHINE CO.
Oakland California



Methods, Materials and Appliances

News for Boards of Public Works, Engineers, Contractors, Purchasing Agents, and Others Interested in the Economical Construction and Efficient Operation of Public Improvement Undertakings

Protecting New York's Water Supply

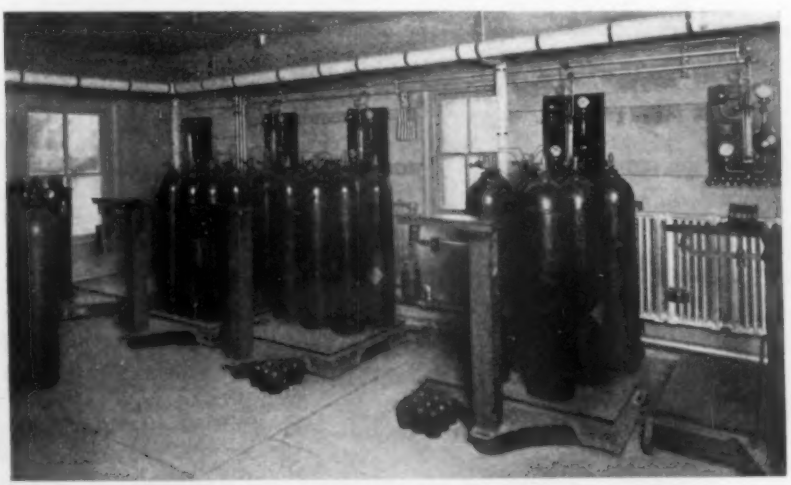
The principal watersheds which comprise the surface water sources of New York City's water supply have a combined area of over 900 square miles, capable of furnishing about 1,075,000,000 gallons daily if necessary. The entire supply, which is unfiltered, is sterilized with chlorine by Wallace & Tiernan apparatus.

Prior to 1911, surface water of a sufficiently high sanitary quality was obtainable without treatment, but as with all surface supplies, it was necessary to establish and maintain a complete system of watershed supervision, inspection and control. The completion of highways around the new reservoirs, particularly Ashokan Reservoir, brought a great many travelers and summer residents at considerable distance back from the edge of the reservoirs. However, this furnished possible pollution, and great care had to be exercised to maintain the high sanitary quality of the supply of the largest city in the United States.

The first method of sterilizing the water was by calcium hypochlorite at the Croton Dam. This plant was removed to the new aqueduct and then again to Dunwoodie, N. Y., where a permanent building was erected. After three years' experience with hypochlorite the water-supply engineers decided to change to the more readily controlled sterilizing agent, liquid chlorine. In July and August, 1914, all the different makes of apparatus on the market were installed at Smith's Point, L. I., to determine their relative efficiency. The results of these tests showed clearly that Wallace & Tiernan apparatus met all the requirements and was capable of delivering a uniform flow of gas under all conditions. At the present time there are 27 W & T chlorinators in service on the various supplies of New York City.

The average daily water consumption in Greater New York is about 600,000,000 gallons, every drop of which is sterilized by liquid chlorine controlled by W & T equipment. Water leaving the Kensico Reservoir is treated with liquid chlorine by four units of equipment installed in the gate chamber of the Catskill Aqueduct at Kensico, N. Y.

Many difficult problems were encountered in the chlorination of the Catskill supply, but these were all overcome by ingenious arrangements of apparatus and methods of application. In order to further protect the supplies, the water flowing in the Kisco River was sterilized by five manually controlled chlorinators, which are shown in the accompanying illustration.



STERILIZING THE KISCO RIVER BY FIVE MANUALLY CONTROLLED CHLORINATORS

Shale that Machine Cut at 3 Ft. Per Minute

660 Ft. In 3 Hours

During 1915, considered an ordinary year, the city laid 25,000 ft. of 6- and 12-in. mains in hand excavated trenches at a labor cost for digging, laying and back-filling of 28.8c. a foot for the smaller and 36.08c. a foot for the larger size. Much more pipe was laid in 1916 and this year because of the rapid growth of the city. While complete unit costs for the last year's work have not yet been compiled, it is known that rising wages caused considerable increase over those of 1915. Records for 10,000 ft. of 6-in. main laid at one time last year show a total labor cost of 37.1c. per foot, of which digging alone represented 19c. with common labor 27½c. an hour. The trench was in clay, with shale at the bottom. As compared with this, the first performance with the trenching machine, excavating for 1620 ft. of line, was accomplished at a fuel and labor cost of $132.84, or 8.2c. per foot for actual digging. This was in gravel which required sheeting, the cost of which is included in the above figure. On another occasion, in digging through cut-over land, where many large but partly rotted stumps were cut through, 682 ft. of trench was dug in four hours, at a cost of $7.55 for three men and 15 gal. of gasoline—only 1.1c. per foot. On Oct. 5 the machine made its speed record of 660 ft. in three hours, but $3.02 for gasoline and $1.88 for the wages of the engineer and helper being charged to the operation. This was about ¾ of a cent per foot. Both trenches were in shale at the bottom.

Waterworks Men!

Look to your costs in these days of high prices and wages. The P & H Excavator purchased by the Erie, Pa., Water Dept. (by whom the record shown here was made) returned half its cost on four miles of mains.

P & H Equipment covers every phase of the job from the opening of the trench to getting the backfill back quickly and compactly. Send for general catalog.

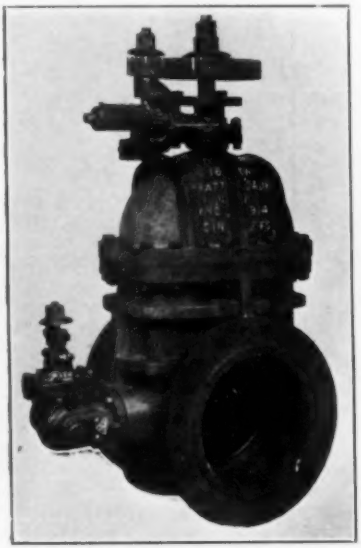
PAWLING & HARNISCHFEGER CO.

MILWAUKEE, WISCONSIN

P&H excavators, back-fillers, tampers.

16-Inch Valves in Cincinnati

When the high-pressure service was installed in Cincinnati, Ohio, in 1914, it was realized that a special valve would be needed to take care of the extraordinary requirements.



16-INCH VALVES FOR HIGH-PRESSURE SERVICE

A special valve for this type service was designed by Pratt & Cady Company, Inc., Hartford, Conn., and a large order for them received. The accompanying photograph shows one of these 16-inch valves, which up to the present time have required absolutely no repairs. Valves similar to this are being furnished constantly by this firm to other cities thruout the country, and are giving the same excellent service.

Chlorine Cylinder Valves

Simplicity of design and operation is assurance of the highest efficiency in any mechanical device, and nowhere is this more desirable than in apparatus which comes in contact with such a highly corrosive gas as chlorine. What are the conditions that have to be considered in the design of a valve which is to be used on cylinders for the transportation of liquid chlorine? Clearly, the first consideration is that of the person whose duty it is to manipulate such valves. Next, what is the function of the valve? Is it used both to prevent the escape of chlorine from the cylinder and at the same time to regulate the flow of the gas therefrom? Chlorine cylinder valves should not be used for controlling or regulating the flow of gas from the cylinder, but purely and simply as a device for securely sealing or preventing the contents of the cylinder from escaping while in storage or in transit, just as bottles are securely corked and sealed. Chlorine attacks all valve packings to a greater or less degree, the constant turning of the valve stem, necessary in regulating the flow of gas from the cylinder, affecting the valve stem packing so that chlorine is likely to leak past the packing when the valve stem is removed from its seat. In valves where it is impossible to tighten or repack the valve stem packing under pressure, this condition becomes a serious menace to those in the vicinity of a leaky valve.

In consideration of the valve used on cylinders containing chlorine sold by Arnold, Hoffman & Co., 61 Broadway, New York, and manufactured by the Mathieson Alkali Works, Inc., Niagara Falls, N. Y., it will be noted that the stuffing box is of the usual design, of ample depth so as to provide for a generous amount of packing, which withstands to a fair degree the action of chlorine. In case a leak should occur, almost any operator would know how to tighten the stuffing box, because of its simplicity and similarity to the usual design. If the packing should be damaged to a degree where repacking was necessary, the valve can be repacked under pressure by turning the stem down upon its seat, removing the packing nut and gland and packing in the usual manner.

By making use of a specially designed clamp and connector, shown in the illustration, most difficulties in connecting the cylinder to a chlorinator are avoided. The flanged end of the connector is inserted in a counterbored hole in the valve body, a small lead washer being previously inserted; and the clamp is placed over the valve, one end engaging the flange on the connector and the screw plate on the other abutting against the valve body, so that when the clamp screw is tightened the connector is forced tightly against the lead washer, insuring a tight joint.

VALVE AND YOKE USED ON LIQUID CHLORINE CYLINDERS OF THE MATHIESON ALKALI WORKS

Hardinge Police Register

Keeps the Patrolman On the Job

From all quarters today comes the cry "Give us more policemen," but policemen cost money.

The chances are that if every man on the force were efficient the need for extra policemen would not be so great.

The larger cities can afford an elaborate electrical system to check the rounds of patrolmen.

The smaller cities cannot afford an electrical system and yet have even a greater need for some such arrangement.

The Hardinge Police Register System at a fraction of the cost of an electrical system will produce the same result, that is, force every man on the force to do the work expected of him.

Hardinge Police Registers are mechanically perfect and tamper-proof. They may be installed on telephone poles or other objects anywhere. There is no wiring. They will produce an embossed record on paper of every patrolman's rounds.

The amount of money wasted on slacker patrolmen is enormous and part of the waste is right in your own city.

Cut out this waste today and give your municipality the protection from fire and crime that the taxpayers are paying their good money for.

A request for information will receive a prompt, cheerful and detailed reply.

HARDINGE BROTHERS, INC.

MANUFACTURERS OF HARDINGE POLICE REGISTERS
AND PATROL AND ALERT WATCHMAN'S CLOCKS

4147 East Ravenswood Ave. **Chicago, U. S. A.**

"SHOOTING THE CHUTE" AT MEDICINE PARK, OKLA.

Prevost Hubbard Accepts New Position

Prèvost Hubbard, formerly Chief of the Division of Tests and Research of the United States Bureau of Public Roads, has accepted the position of chemical engineer for The Asphalt Association, 15 Maiden Lane, New York. In his new position he will direct the technical and research work of the Association, and will coöperate to the fullest possible extent with public officials, engineers, contractors and others interested in highway construction and the use of asphalt for various purposes.

George A. Johnson Again Promoted

George A. Johnson, whose partnership with Major W. L. Benham was recently announced in these pages, was promoted on July 3 to the rank of Colonel. Colonel Johnson entered the service in the spring of 1918 as Major, and was promoted to Lieutenant-Colonel on November 7, 1918. He is now second in command of the Operation and Repair Branch of the Construction Division of the Army, which has charge of the operation and maintenance of roads, railroads, buildings, water-supply, sewerage, electrical and all other utilities in the various establishments under the jurisdiction of the War Department.

A Water Slide

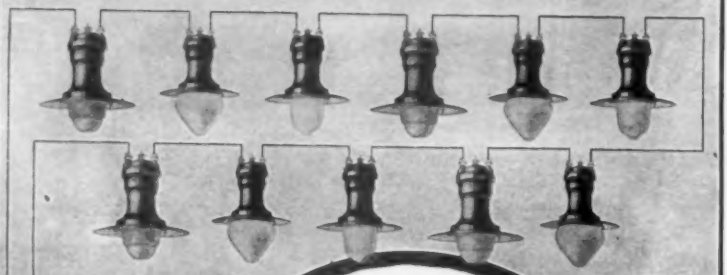
Probably no other piece of playground equipment gives so much satisfaction to fun lovers of all ages as the wave coaster slide. This slide, manufactured by the American Playground Device Company, of Anderson, Ind., makes a valuable addition to the outdoor swimming pool, as is evident in the above photograph, showing one of these slides in use at Medicine Park, Okla. The model in the illustration has a chute 30 feet long, lined along the bedway with galvanized steel. The platform framework and platform supports are of galvanized pipe, wood construction being completely lacking except in the platform base or floor. The ladder approach is equipped with perforated steel treads and metal hand rails, and is pitched on an easy slant. The slide is adapted for use on both land and water.

Reliable Information on Road Construction

The Highway Industries Association, 1311 G Street N. W., Washington, D. C., is coöperating thru its editorial department with good roads organizations and state highway departments thruout the country in the promotion of bond issue campaigns and other means of insuring the construction of economic highways.

An editorial and publicity service, based upon an intimate understanding of all points involved in road development, is thus placed at the call of highway improvement organizations upon a purely coöperative basis and without charge. The Highway Industries Association, representing, as it does, all factors impartially, is free from the influence of any particular material interest. It was organized and is operating for the specific purpose of coördinating highways with other transportation agencies of the country, to encourage the development of highways that advance the economic life of the nation, to stimulate their use in such a manner as to facilitate and cheapen the transportation of food, raw material and finished products, and to coöperate

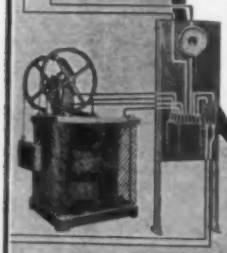
Reduce Lamp Renewals By Close Current Regulation



Westinghouse
Ventilated-Coil Type, Series Mazda
Regulators

give such accurate regulation that the lamp filament is afforded ample protection at all times against excessive current and surges on the series circuit. This protection means increased lamp life and lower operating costs.

Westinghouse Type CF Luxsolite Fixtures are designed for use with the highly efficient gas-filled Mazda Lamp. They are attractive and durable. With the various types of diffusing and refracting glassware, they satisfy the most exacting requirements of efficient Street Lighting.



Westinghouse Electric & Manufacturing Co.
East Pittsburgh, Pa.

W
WESTINGHOUSE ELECTRIC

Westinghouse

with government agencies, both state and national, to the end that the public highways may be of maximum service in the transportation system of the country.

The editorial branch of the Association's activities is under the direction of James W. Brooks, former executive editor of the American Magaine Association, and a recognized authority on the fundamental principles involved in community development. He also writes and directs the production of motion picture films for municipal and highway improvement, and in this capacity occupies the unique distinction of being the first screen editorial writer in America.

Highway officials and others interested in presenting arguments for municipal and highway improvements in a most convincing manner, will find that this branch of the Highway Industries Association works a great advantage in the conduct of state, county and municipal campaigns.

Handy Tables for Electric Lighting

In the June, 1919, issue of THE AMERICAN CITY was published an item stating that a very comprehensive booklet containing handy wiring tables and illumination data for the use of those interested in the more efficient use of electric light could be secured from the George Cutter Company, South Bend, Ind., and that it would be of value to city officials interested in street lighting. This was an error on the part of THE AMERICAN CITY, as these tables are intended to cover industrial lighting only. However, a full set of literature describing Cutter standards for street lighting for up-to-date and progressive cities can be secured by any of our readers by writing to the George Cutter Company, 413 Notre Dame Street, South Bend, Ind.

Arthur H. Blanchard, Professor at Michigan University

Arthur H. Blanchard has been appointed Professor of Highway Engineering at the University of Michigan, to occupy the chair recently established by the Board of Regents. He will retain his consulting office at Broadway and 117th Street, New York City, until September 15, after which he will be located in Ann Arbor, Mich.

New Selling Offices for Luitwieler Company

David Garvey, an experienced well driller, and F. W. Meegan, both of whom have represented the Luitwieler Pumping Engine Company in the East for the last six years, have organized the Hydraulic Engineering Corporation and will act as sole distributors—domestic and export—in the East for the Luitwieler Company, with offices in New York and Philadelphia.

Steel Tanks for San Juan Water-Works

In the construction of the water-works in San Juan, Porto Rico, it was found necessary to install three elevated tanks, one of them, shown in the above picture, having a capacity of 600,000 gallons and elevated 42 feet from the ground measured to the bottom of the tank. These three elevated steel tanks were manufactured in Pittsburgh, Pa., by the Pittsburgh Des Moines Steel Company, and erected by them at San Juan, Porto Rico, for the city.

A great many cities are taking advantage of the use of elevated steel tanks in increasing their water-supplies, because they can be readily fabricated and secured fully as quickly as tanks of any other material.

ONE OF THE THREE ELEVATED WATER TANKS IN SAN JUAN, PORTO RICO

THE FUN-FUL LINE
PLAYGROUND EQUIPMENT

HOW ABOUT THAT PLAY-GROUND DEVELOPMENT WHICH IS NEEDED IN YOUR COMMUNITY? WOULD YOU LIKE US TO HELP YOU GET THINGS STARTED?

We have "Everything for the Playground"

INCLUDING SLIDES, SWINGS, OCEAN WAVES, SEE-SAWS, GIANT STRIDES, OUTDOOR GYMNASIUM COMBINATIONS, ETC. ALSO A COMPLETE LINE OF ATHLETIC GOODS AT WHOLESALE PRICES. LET US FURNISH PLANS, SPECIFICATIONS AND ESTIMATES FOR YOUR ENTIRE DEVELOPMENT.

We are Recreation Engineers and Our Advice is at Your Disposal

WRITE FOR FREE BOOK

HILL-STANDARD COMPANY

216 FUN-FUL AVENUE ANDERSON, INDIANA

Ornamental Lighting Standards

Many cities have improved the appearance of their streets by installing the Elreco lighting standards manufactured by the Electric Railway Equipment Company, of Cincinnati, Ohio. The accompanying illustration shows only one of a great variety of attractive models which have been designed by the company for use in all types of streets. The company also makes a specialty of producing a large variety of designs of combination railway and lighting poles, on the very sensible theory that there is no need to use two poles for supporting span wire and lighting bracket when one will do as well. Double the number of poles and you double the expense, double the curb obstruction, and detract considerably from the appearance of the street. A booklet which is issued by the company illustrates this point, and presents also a large number of illustrations of its various designs.

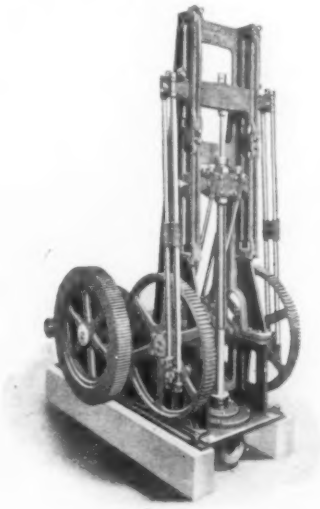
New Eastern Offices for Busch-Sulzer Bros.-Diesel Engine Company

The Busch-Sulzer Bros.-Diesel Engine Co., of St. Louis, announce that they have opened an eastern sales office at 60 Broadway, New York, in charge of George D. Pogue, Eastern Sales Agent, and Stanley Wright, Assistant.

Deep Well Pumps

Direct-connected deep well pumps are featured by A. D. Cook, manufacturer, Lawrenceburg, Ind. It is stated that the distinctive features possessed by this type are not found in other crank pumps in the market. The center of gravity is down close to the base plate, causing the pump to operate without any vibration and eliminating any tendency toward top-heaviness. This arrangement of the parts also makes the pump more accessible for oiling and inspection.

A feature of this pump contributing especially to its efficiency and quiet operation is that the main shaft is set off of the center of the well a distance equal to one-half the throw of the crank, so that on the up-stroke the crank pins are almost directly under the cross-heads, thus relieving the guides of side thrusts on the up-stroke of the cross-heads when the pump is doing all its work. By thus off-setting the crank shaft, the crack pins actually travel a greater distance on the up-stroke than they do on the down-stroke of the cross-heads; and as the speed is uniform for the entire revolution, the pump plungers are raised more slowly on the up-stroke when they are doing all the work, and are returned at a greater speed on the down-stroke when



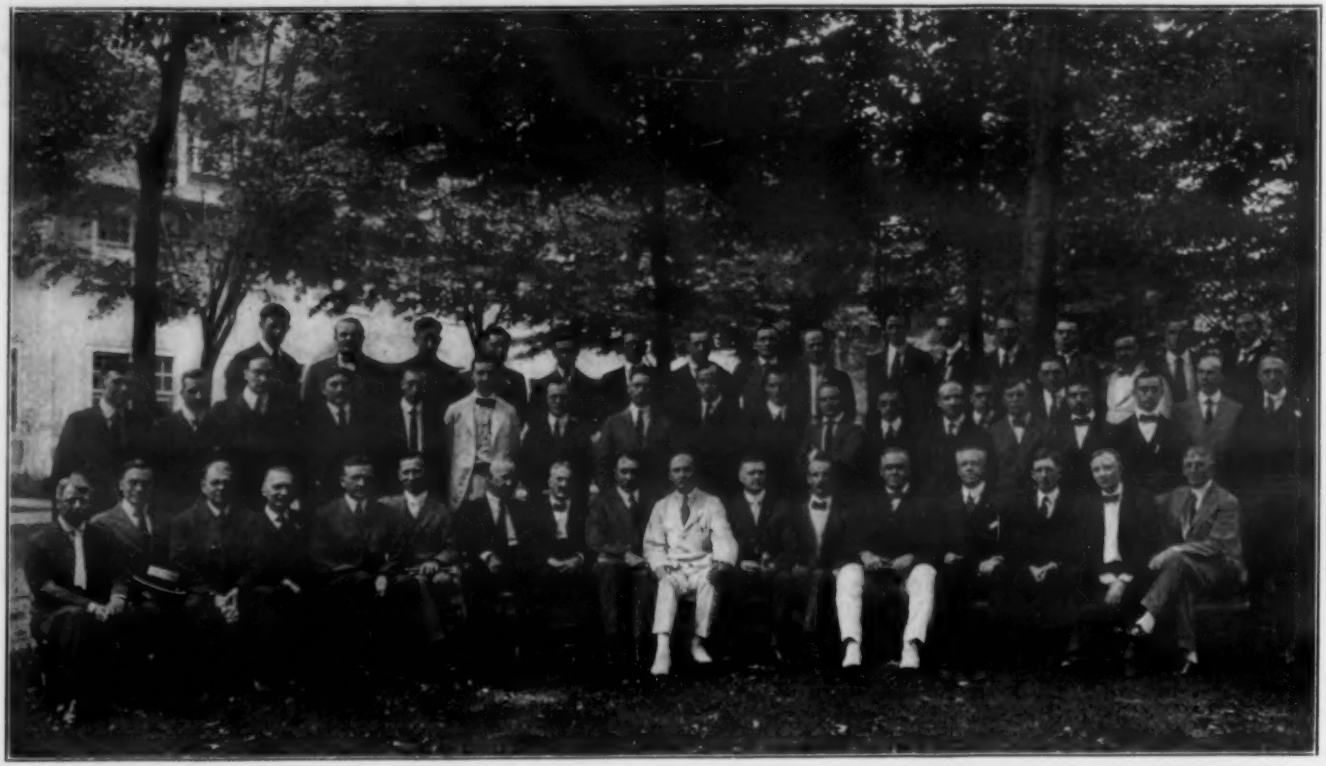
A DEEP WELL PUMP OF THE PLUNGER TYPE THAT OPERATES WITHOUT VIBRATION

they are going down empty, securing economy of power in a very simple manner. This causes the strokes to overlap slightly, preventing the water column from coming to a dead stop at each revolution of the pump, as is the case in other crank pumps.

AMERICAN-LA FRANCE CHEMICAL ENGINE ON FORD CHASSIS AT UNIONTOWN, KY.

When writing to Advertisers please mention THE AMERICAN CITY.

Fifty-three Members of the American City Bureau Staff



This photograph was made July 22, 1919, at the Fifth Annual Session of the American City Bureau Summer School of Community Leadership, which was attended by more than two hundred and fifty men, most of whom are engaged in Chamber of Commerce work, from thirty states of the Union and from three provinces of Canada.